United States
Department of
Agriculture

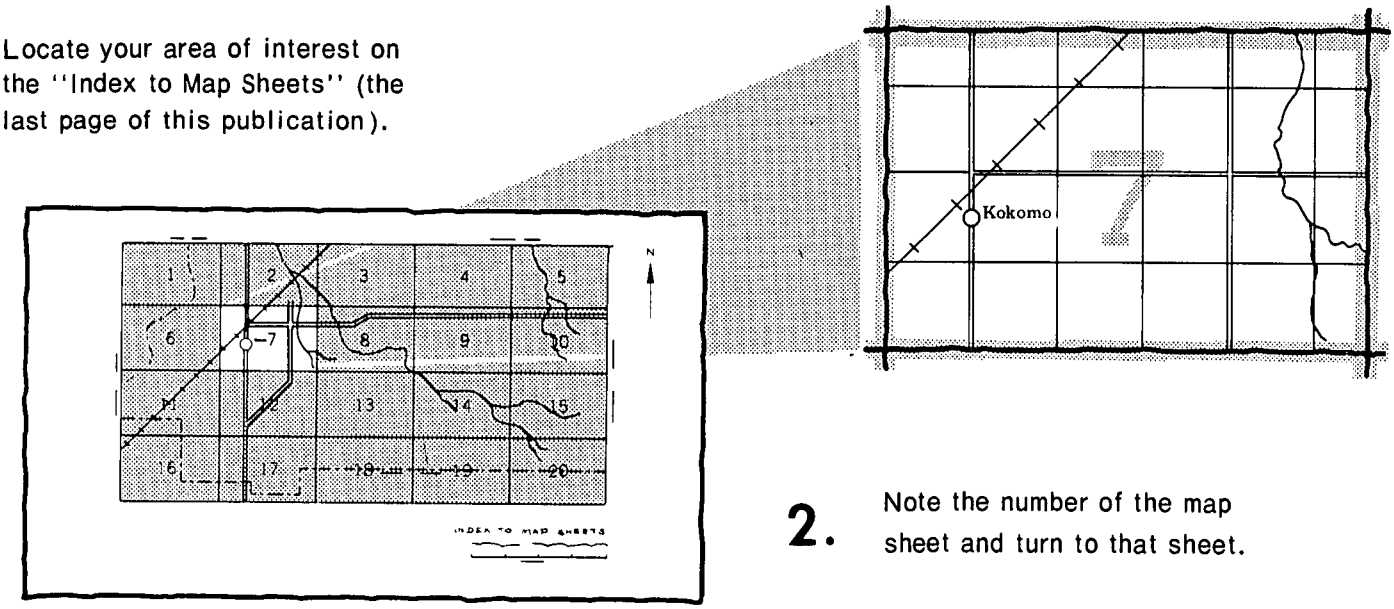
Soil
Conservation
Service

In Cooperation with
Mississippi Agricultural
and Forestry
Experiment Station

Soil Survey of Lauderdale County Mississippi

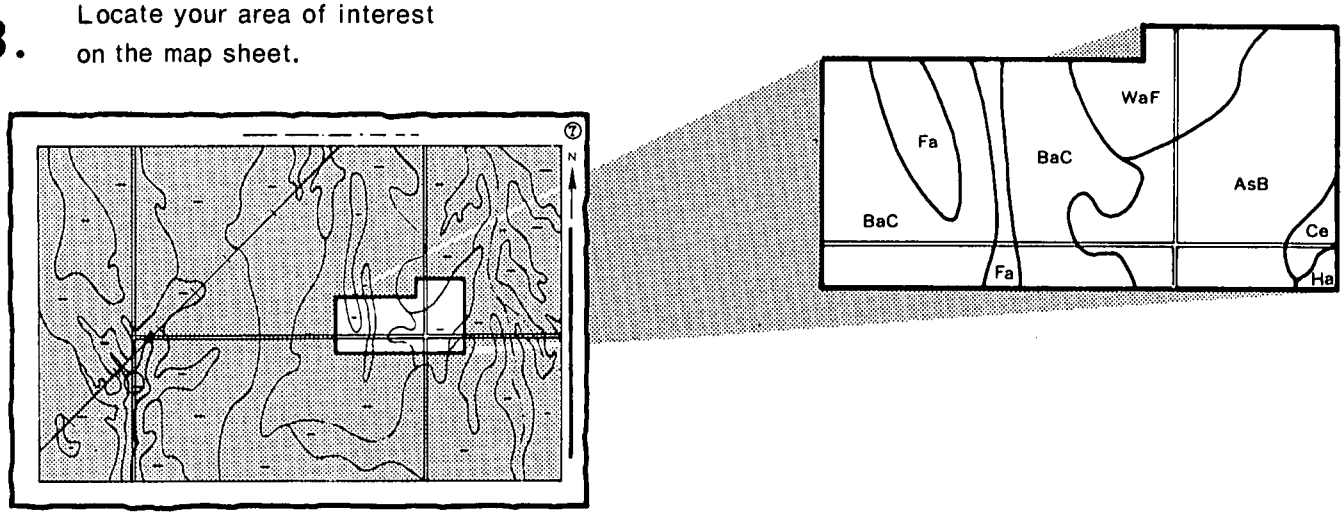
HOW TO USE

1. Locate your area of interest on the "Index to Map Sheets" (the last page of this publication).

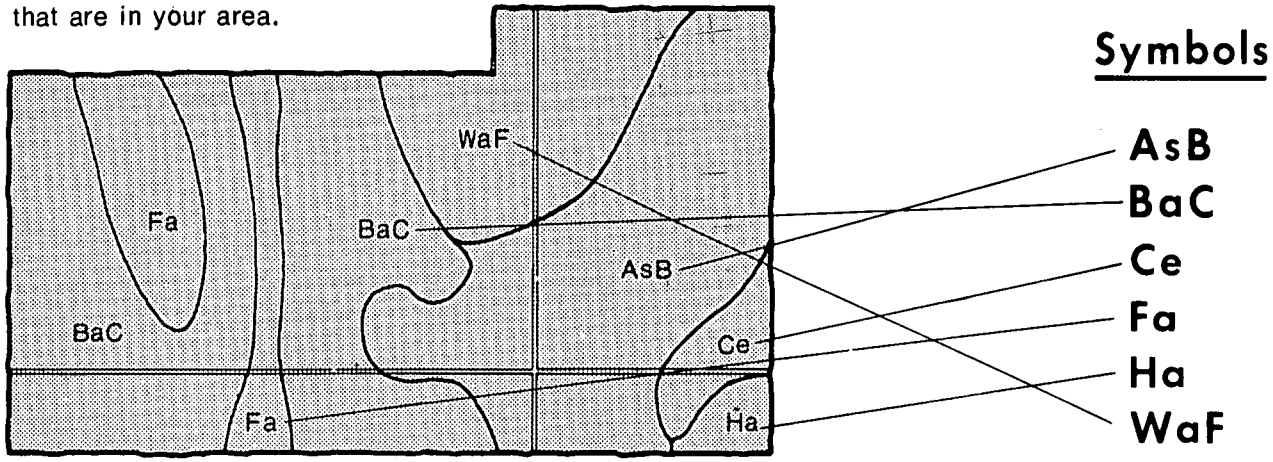


2. Note the number of the map sheet and turn to that sheet.

3. Locate your area of interest on the map sheet.

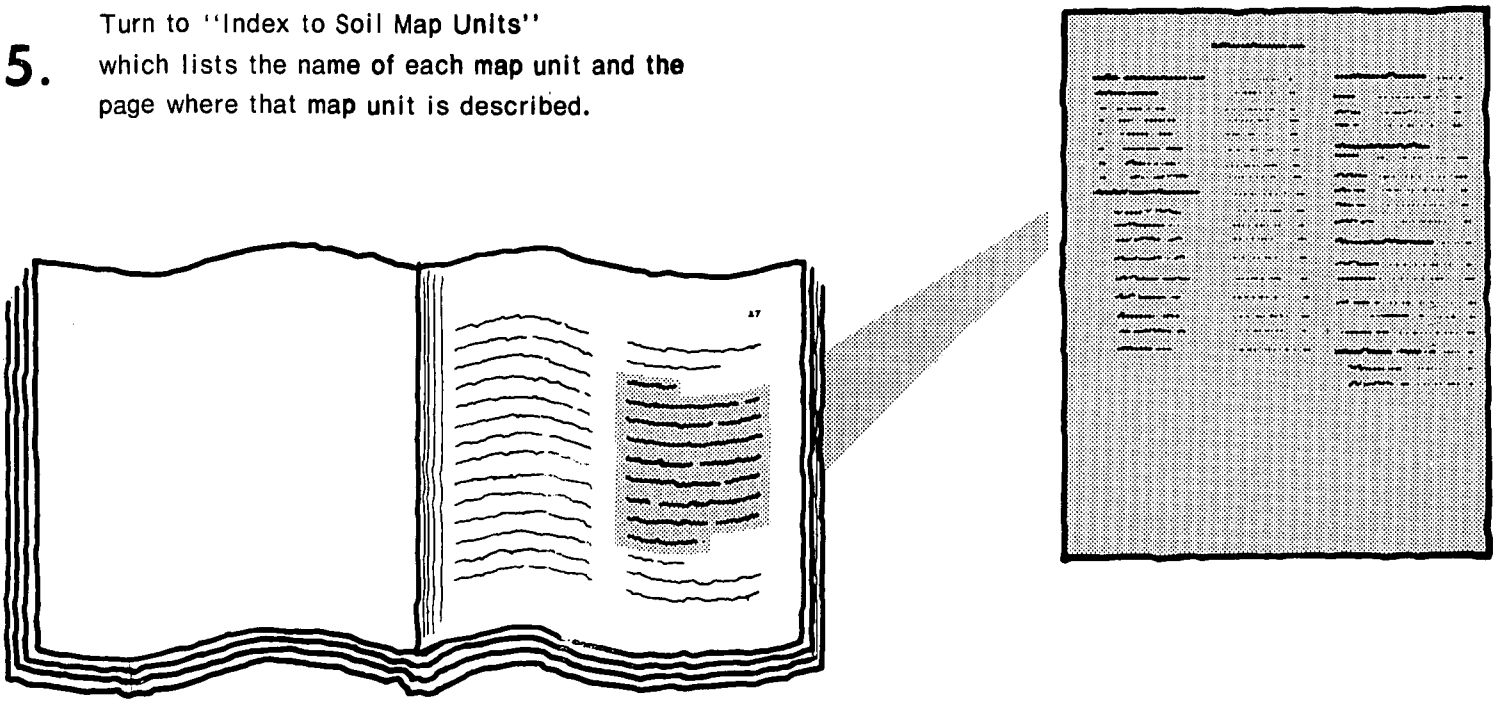


4. List the map unit symbols that are in your area.

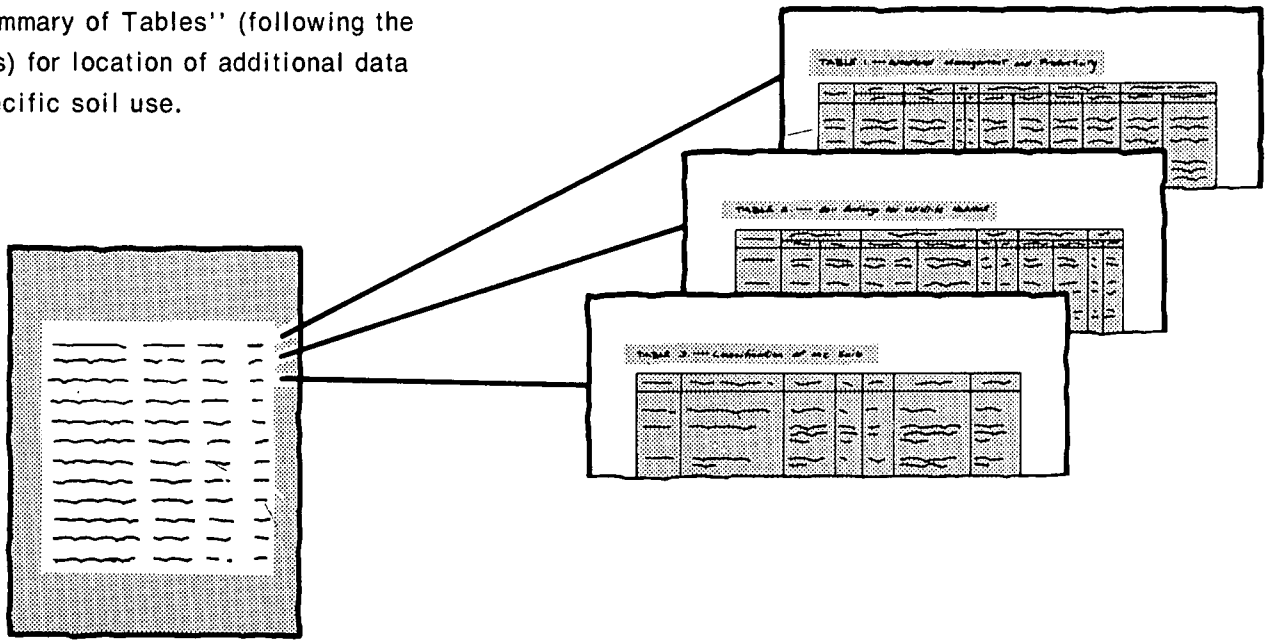


THIS SOIL SURVEY

5. Turn to "Index to Soil Map Units" which lists the name of each map unit and the page where that map unit is described.



6. See "Summary of Tables" (following the Contents) for location of additional data on a specific soil use.



7. Consult "Contents" for parts of the publication that will meet your specific needs. This survey contains useful information for farmers or ranchers, foresters or agronomists; for planners, community decision makers, engineers, developers, builders, or homebuyers; for conservationists, recreationists, teachers, or students; to specialists in wildlife management, waste disposal, or pollution control.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Experiment Stations, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was performed in the period 1972-79. Soil names and descriptions were approved in 1980. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1980. This survey was made cooperatively by the Soil Conservation Service and the Mississippi Agricultural and Forestry Experiment Station. It is part of the technical assistance furnished to the Lauderdale County Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Cover: A wood pressure treatment plant near Meridian on Urban land. Timber products from this plant include poles, pilings, crossties, posts, and lumber. About 71 percent of the acreage of Lauderdale County is in woodland.

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soil series

Issued July 1983

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foreword

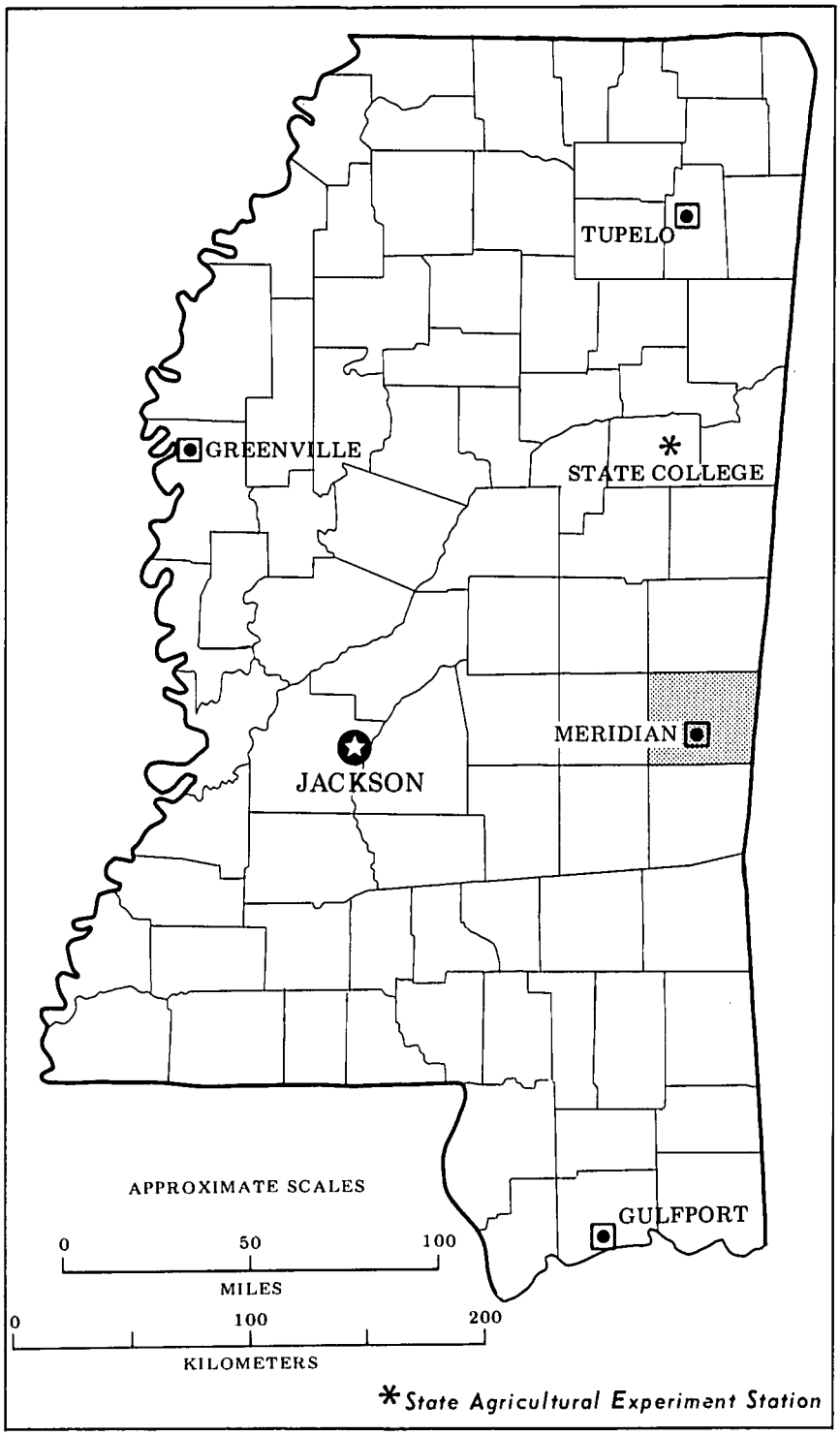
This soil survey contains information that can be used in land-planning programs in Lauderdale County, Mississippi. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the Cooperative Extension Service.

Billy C. Griffin
State Conservationist
Soil Conservation Service



Location of Lauderdale County in Mississippi.

soil survey of
Lauderdale County, Mississippi

By Velton C. Allgood, Soil Conservation Service

Soils surveyed by Velton C. Allgood and Huel L. Neal
Soil Conservation Service

United States Department of Agriculture, Soil Conservation Service
in cooperation with
Mississippi Agricultural and Forestry Experiment Station

LAUDERDALE COUNTY is in the east-central part of Mississippi. The county is bound on the north by Kemper County, on the west by Newton County, on the south by Clarke County, and on the east by Choctaw and Sumter Counties, Ala. In 1970, Meridian, the county seat, had a population of about 45,000, and the county had about 67,000 (*12*). The total area of Lauderdale County is about 461,440 acres, or about 721 square miles. The county is approximately 30 miles wide and 24 miles long.

An earlier soil survey of Lauderdale County was published in 1912 (*3*). The present survey updates the earlier survey and provides additional information and larger maps that show the soils in greater detail.

Descriptions, names, and delineations of soils in this soil survey do not fully agree with those on soil maps for adjacent counties. Differences are the result of better knowledge of soils, modifications in series concepts, intensity of mapping, or the extent of soils within the survey area.

general nature of the county

The history, climate, natural resources, farming, relief, and landscape resources of Lauderdale County are discussed in this section.

history

Lauderdale County was established December 23, 1833, from the territory acquired from the Choctaw Indians by the Treaty of Dancing Rabbit Creek. The county was named in honor of Colonel James Lauderdale, who had distinguished himself in the War of 1812. Marion was the first county seat. Meridian became a chartered city in 1860 and became the county seat in 1870. Meridian briefly served as the State capital in 1863.

Railroads were important to the growth and development of Lauderdale County. They offered rail service to eastern cities, to the Gulf through Mobile, Ala., and to the west through Vicksburg. The railroads intersected at Meridian. Meridian was commonly referred to as "The Queen City of the East."

During the Civil War, Meridian and other parts of the county were heavily damaged. After the war, Meridian steadily grew as an industrial town. In 1878, however, many people died during an epidemic of yellow fever and as a result of a cyclone that ravaged the city. At that time cotton and lumber were the main farm commodities.

Now, Lauderdale County is served by three railroads, two Interstate Highways, and several federal and state highways.

The local municipal airport provides facilities for daily commercial jet flights, and it serves as a National Guard training center. The U.S. Navy operates the Meridian Naval Air Station, which is located in the northern part of Lauderdale County.

climate

Prepared by the National Climatic Center, Asheville, N.C.

Lauderdale County has long, hot summers because moist tropical air from the Gulf of Mexico persistently covers the area. Winters are cool and fairly short, with only a rare cold wave that moderates in 1 or 2 days. Precipitation is fairly heavy throughout the year, and prolonged droughts are rare. Summer precipitation, mainly afternoon thundershowers, is adequate for all crops.

Table 1 gives data on temperature and precipitation for the survey area, as recorded at Meridian, Miss., from 1951 to 1976. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 48° F, and the average daily minimum temperature is 36°. The lowest temperature on record, which occurred at Meridian on January 12, 1962, is 0°. In summer the average temperature is 80°, and the average daily maximum temperature is 92°. The highest recorded temperature, which occurred on August 31, 1951, is 104°.

Growing degree days, shown in table 1, are equivalent to heat units. During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50°). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

Of the total annual precipitation, 25 inches, or 50 percent, usually falls in April through September, which includes the heaviest 1-day rainfall during the period of record, which was 7.99 inches at Meridian on December 25, 1973. Thunderstorms occur on about 60 days each year, and most occur in summer.

Average seasonal snowfall is 1 inch. The greatest snow depth at any one time during the period of record was 15 inches. On the average, seldom is there a day that has at least 1 inch of snow on the ground, but the number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 90 percent, the percentage of possible sunshine is 60 in summer and 50 in winter. The prevailing wind is from the south. Average windspeed is highest, 7 miles per hour, in spring.

Severe local storms, including tornadoes, strike occasionally in or near the area. They are short and cause variable and spotty damage. Every few years in summer or autumn, a tropical depression or remnant of a hurricane, which has moved inland, causes extremely heavy rains for 1 to 3 days.

natural resources

Forests are the most important natural resource in the county. About 328,600 acres, or 71 percent, of the county is in forestland. Pine and low grade hardwood trees are on the uplands, and mainly hardwood trees are on the flood plains. Most of the wood from these forests is made into lumber, paper, and plywood.

Farmers and other private owners control about 79 percent of the woodland, industry owns about 16 percent, and the remaining 5 percent is public owned (*11*).

Clay and sand are mined in the county. Most of the clay is used for making drain tile. The sand is used by local industries.

Water supply is adequate for industrial and residential uses in the county. Deep wells and reservoirs provide the water for industries and city residents. In recent years many rural communities have installed water systems that obtain water from deep wells. Farms and homes not on community systems obtain water from individual shallow and deep wells. There are a few artesian wells in the county.

farming

Early agriculture was primarily subsistence to provide the settlers with food and clothing. Cotton was the main source of cash income. Since about 1930, cotton acreage has decreased and acreage used for other cultivated crops and pasture has increased. Now only a few acres of cotton are planted. Because of the increase in pasture acreage, livestock has become the major source of income. Corn is grown mainly for feed.

According to the 1974 Census of Agriculture, about 42,000 acres was used for pasture and 3,000 acres was used for crops. Corn and soybeans are the main crops harvested in the county. Beef cattle is the main livestock enterprise.

relief

All of Lauderdale County lies within the Gulf Coastal Plain physiographic province. The surface is a mature dissected upland, almost entirely within that topographic division known as the North Central Hills. Most of the county is an upland underlain by alternating beds of sand and clay into which the streams have cut valleys. In the extreme northeastern corner of the county, where the valley of Ponta Creek has cut into the Porters Creek clay, there is a typical plain topography of the flatwoods.

Topography varies from undulating broad plateau areas between major stream systems to rugged dissected uplands, which are characterized by steep side slopes and narrow ridgetops. Elevation above sea level ranges from about 185 feet on the flood plain of Toomsuba Creek on the Alabama State boundary to about 645 feet on the hilltops in the northwest corner of the county. The northern section of the county is rolling to moderately hilly, broken by occasional high prominent hills. Westward from Suqualena and southward from Meridian are a broken series of steep side slopes and hills where local relief varies by as much as 150 feet.

Topography in the eastern part of the county varies from undulating plateau areas to slightly hilly.

All the major streams have fairly broad valleys with flood plains bordered by one or more low terraces. Okatibbee, Sowashee, Long, Buckatunna, and Hurricane Creeks drain the central and southeastern parts of the county. Chunky River and Tallahatta Creek drain the western and southwestern parts of the county. All of these streams flow southward into Chickasaway River. The northern and eastern parts of the county are drained by Ponta, Toomsuba, and Alamucha Creeks that flow generally easterly and form part of the Tombigbee-Alabama River system.

Except for recent alluvium in the stream valleys, all the outcropping geological formations are Eocene in age. They consist mainly of unconsolidated or poorly consolidated sands, sandy clays, and shales.

Materials of 10 formations are exposed in the county. From the youngest to the oldest, they are the Lisbon, Tallahatta, and Meridian Formations of the Claiborne Series; the Hatchitigbee, Bashi, Holly Springs, Ackerman, and Fearn Springs Formations of the Wilcox Series; and the Naheola and Porters Creek Formations of the Midway Series (*5*).

Individual beds vary greatly from place to place, and where exposed in hillsides, they erode and slump rather easily. However, the major stratigraphic features are rather constant and characteristic. This is apparent in the general succession of beds in which sands, clays, or shales predominate and in the relation of these beds to such key beds, as lignite and glauconite.

The detail of the topography of the county reflects the underlying geology. Formations crop out in slightly concentric belts with a general trend from northwest to southeast. The regional dip is between 25 and 30 feet to the mile toward the southwest, but is more south-southwest in the eastern part of the county. Many of the streams tend to parallel the strike of the gently dipping strata, the more resistant of which stand as cuesta-like ridges. The resistant Tallahatta claystone caps many of the prominent high hills and ridges in the southwest part of the county (*5*). This claystone formation is composed of sharp irregular fragments of claystone interbedded in a matrix of hard quartzitic sandstone.

landscape resource

Ernest E. Dorrill, III, landscape architect, Soil Conservation Service, helped prepare this section.

The landscape resource has three aspects: ecological, social, and visual. The ecological aspect is determined by the processes that have formed and shaped the landscape in its entirety. The composition and topography of the soils are basic to this aspect of the landscape resource. The social resource is the usefulness of the landscape for economic and other cultural purposes. The visual resource is the classifiable appearance of the landscape (*9*).

The visual resource can be described and measured by four elements: landform, water, vegetation, and structures. These elements and their pattern determine the visual diversity of a landscape (*10*). A landscape that has a measurable slope, height, and shape can be compared and rated with other landscapes in the same geographic area. In the "General soil map units" section, each map unit, which is distinctive in that it makes up a landscape, has been rated for visual diversity and the visual contrast that changes in land use have on the landscape.

The visual quality of the landscape is affected by land use, which is influenced by soil characteristics. Visual diversity ratings, therefore, can be used in conservation planning and in establishing a desirable continuity of landscape elements.

The quality of the landscape resource should be a consideration along with soil capability in planning farmland or urban use. Some tillage methods may create a hazard of erosion and a decline in visual quality. Planting crops on soils not suitable for row crops and then leaving the soil uncovered in winter could result in deep rills and gullies. Sand and silt from these eroding soils could clog streams and result in a decrease in visual quality. Urban structures, such as roads, highways, and utilities, alter the appearance of the landscape, as does strip mining, which is becoming commonplace in the county.

how this survey was made

Soil scientists made this survey to learn what soils are in the survey area, where they are, and how they can be used. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; and the kinds of rock. They dug many holes to study soil profiles. A profile is the sequence of natural layers, or horizons, in a soil. It extends from the surface down into the parent material, which has been changed very little by leaching or by plant roots.

The soil scientists recorded the characteristics of the profiles they studied and compared those profiles with others in nearby counties and in more distant places. They classified and named the soils according to nationwide uniform procedures. They drew the boundaries of the soils on aerial photographs. These photographs show trees, buildings, fields, roads, and other details that help in drawing boundaries accurately. The soil maps at the back of this publication were prepared from aerial photographs.

The areas shown on a soil map are called map units. Most map units are made up of one kind of soil. Some are made up of two or more kinds. The map units in this survey area are described under "General soil map units" and "Detailed soil map units."

While a soil survey is in progress, samples of some soils are taken for laboratory measurements and for

engineering tests. All soils are field tested to determine their characteristics. Interpretations of those characteristics may be modified during the survey. Data are assembled from other sources, such as test results, records, field experience, and state and local specialists. For example, data on crop yields under defined management are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it can be used by farmers, woodland managers, engineers, planners, developers and builders, home buyers, and others.

general soil map units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Descriptions of the general soil map units follow.

Deep or moderately deep, well drained soils; on hilly uplands

This group consists of general soil map units 1, 2, and 3. The major soils are the loamy Arundel, Smithdale, and Sweatman soils and the sandy Heidel, Lucy, and McLaurin soils. These soils are mainly on steep side slopes and gently sloping or sloping narrow to moderately wide ridges. The Arundel soils are underlain by rock at a moderate depth. The soils are well drained. The landscape is dominantly hilly. Slopes range from 2 to 35 percent. This group makes up about 38.5 percent of the county.

1. Sweatman

Deep, well drained loamy soils; on steep side slopes and narrow gently sloping ridges

The landscape is characterized by prominent relief. It is a mass of hills and ridges that have gently sloping ridgetops and steep side slopes. Slopes range from 2 to 35 percent. The drainage pattern is dendritic. Most of the streams are intermittent and have incised, winding channels on narrow flood plains. Most of the unit is in forest of pine and scattered hardwoods. The occasional small openings are either small farmsteads or old fields. Based on the pattern of these landscape elements, visual diversity of this unit is moderate to low. Most land use changes would be of high contrast on the landscape.

This map unit makes up about 21 percent of the county. It is about 65 percent Sweatman soils and 35 percent minor soils.

Sweatman soils are on the ridgetops and side slopes. They are well drained loamy soils that have a clayey subsoil. Below the subsoil, there are strata of loamy material and weathered shale.

The minor soils are the well drained Ruston soils and the moderately well drained Ora soils on the ridges, the well drained Smithdale soils on the side slopes, and the moderately well drained Kirkville soils and the poorly drained Bibb soils on the narrow flood plains.

The Sweatman soils on gently sloping ridges are suited to cropland, pasture, and woodland. Sweatman soils on side slopes are best suited to woodland. A moderate to severe erosion hazard and steepness of slopes are the main limitations. Shrinking and swelling of the soil with changes in moisture content and steepness of slopes are limitations to urban uses. The potential is very poor for development of wetland wildlife habitat, fair for openland habitat, and good for woodland and wildlife habitat.

2. McLaurin-Lucy-Heidel

Deep, well drained sandy soils; on steep side slopes and moderately wide gently sloping ridges

The landscape is characterized by prominent relief. It is dissected uplands that have moderately wide, gently rolling ridgetops separated by moderately steep to steep sideslopes. Slopes range from 2 to 35 percent. The drainage pattern is dendritic. Well defined stream channels, mostly with intermittent flow, wind through narrow flood plains. Most of the acreage of the unit is in woodland of pines and hardwoods. Scattered on the wide ridgetops and in the valley bottom lands are small farmsteads. Based on the pattern of these landscape elements, visual diversity of this unit is moderate to low. Most land use changes would be of high contrast on the landscape.

This map unit makes up less than 2.5 percent of the county. It is about 35 percent McLaurin soils, 25 percent Lucy soils, 20 percent Heidel soils, and 20 percent minor soils.

McLaurin soils are on the ridgetops and side slopes. They are deep, well drained sandy soils that have a

loamy subsoil. Lucy and Heidel soils are on the side slopes. They are deep, well drained sandy soils.

The minor soils are the well drained Ruston soils on the upper side slopes, the well drained Smithdale and well drained Sweatman soils on the steeper portions of the side slopes, and the poorly drained Bibb soils on the narrow flood plains.

The McLaurin soils on the ridgetops are well suited to use as cropland and pasture and are suited to use as woodland. On the steep side slopes, the Lucy and Heidel soils are poorly suited to cropland and pasture and suited to woodland. They are severely limited for urban uses by the steepness of slopes. The McLaurin soils on the gently sloping ridges have slight limitations for urban uses.

The soils making up this unit have very poor potential for wetland wildlife habitat. The McLaurin soils have good potential for openland and woodland wildlife habitat. The Lucy soils have fair potential for openland habitat and good potential for woodland habitat. The Heidel soils have poor potential for openland wildlife habitat and fair potential for woodland wildlife habitat.

3. Arundel-Sweatman-Smithdale

Moderately deep to deep, well drained loamy soils; on steep side slopes and narrow sloping ridges

The landscape is characterized by prominent relief. It is a mass of rugged dissected hills that have strongly contrasting local relief. Steep side slopes segregate long, narrow, winding, gently rolling ridgetops. Slopes range from 2 to 35 percent. Numerous short drainageways are notched into the side slopes. The drainageways come together to become creeks that flow in winding courses through narrow flood plains. They are flanked by very steep hills that have rock outcrops in places. Land use is mostly woodland of pines and a few hardwoods. Occasional open areas on gently rolling ridgetops have farm structures. Based on the pattern of these landscape elements, visual diversity of this unit is moderate to high. Most land use changes would be of high contrast on the landscape.

This map unit makes up about 15 percent of the county. It is about 40 percent Arundel soils, 25 percent Sweatman soils, and 15 percent Smithdale soils. The minor soils are Kirkville, Lauderdale, Lucy, and Ruston soils.

The soils of this map unit are intermixed on the upland positions. The Arundel soils are moderately deep, well drained loamy soils that have a clayey subsoil. They are underlain by sandstone, siltstone, or buhrstone. The Sweatman soils are deep, well drained loamy soils that have a clayey subsoil. They are underlain by strata of loamy material and weathered shale. The Smithdale soils are deep, well drained loamy soils that have a loamy subsoil.

The minor soils are the shallow, well drained Lauderdale soils and the deep, well drained Lucy and Ruston soils on the upland positions. The deep, moderately well drained Kirkville soils are on narrow flood plains.

On ridges the Sweatman and Smithdale soils are suited to pasture and woodland and Arundel soils are poorly suited. Smithdale and Arundel are poorly suited to cropland, and Sweatman soils are suited to cropland. On side slopes, the Arundel, Sweatman, and Smithdale soils are suited to woodland. The steepness of slopes, severe erosion hazard, and rock outcrop are the main limitations for most uses. Steepness of slopes and shrinking or swelling of the soil with changes in moisture content are limitations for urban uses.

Potential is low for wetland wildlife habitat and high for openland and woodland habitat.

Deep, well drained or moderately well drained soils; on hilly uplands

This group consists of general soil map units 4, 5, and 6. The major soils are the loamy Ora, Ruston, Smithdale, and Sweatman soils. These soils are mainly on gently sloping or sloping ridges and steep side slopes. The moderately well drained Ora soils have a fragipan; and the Ruston, Smithdale, and Sweatman soils are well drained. The landscape is dominantly hilly. Slopes range from 2 to 35 percent. This group makes up about 46.5 percent of the county.

4. Ruston-Smithdale

Deep, well drained loamy soils; on broad gently sloping ridges and strongly sloping side slopes

The landscape is characterized by varied relief dominated by broad gently sloping ridgetops and strongly sloping side slopes. Narrow flood plains border incised, winding, mostly intermittent streams. The drainage pattern is dendritic. Slopes range from 2 to 12 percent. Land use is woodland of pines with intermingled hardwoods and open farmland mainly used for pasture. Farm structures are numerous. Based on the pattern of these landscape elements, visual diversity of this unit is moderate. Land use changes would be of moderate contrast on the landscape.

This unit makes up less than 1.5 percent of the county. It is about 60 percent Ruston soils and 25 percent Smithdale soils. The minor soils are Lucy and McLaurin soils.

Ruston soils are on the ridgetops. They are loamy soils that have a loamy subsoil. The Smithdale soils are on the side slopes. They are loamy soils that have a loamy subsoil.

The minor soils are the deep, well drained McLaurin soils on the ridges and the deep, well drained Lucy soils on the lower part of the side slopes near the drains.

The soils in this unit are used mainly for pasture and crops, but soils on some ridges and side slopes are used as woodland. The Ruston soils on the ridges are well

suited to pasture and cropland and suited to woodland. The Smithdale soils on the side slopes are suited to pasture and woodland. The steepness of slopes and moderate erosion hazard are the main limitations for most uses. The Ruston soils have few limitations for urban uses. Steepness of slopes is a limitation for urban uses on the Smithdale soils. Potential is very poor for wetland wildlife habitat and good for openland and woodland habitat.

5. Sweatman-Smithdale

Deep, well drained loamy soils; on moderately wide sloping ridges and steep side slopes

The landscape is characterized by prominent relief. It is hilly uplands with ridgetops that are moderately wide and gently rolling and side slopes that are steep. Slopes range from 5 to 35 percent. The drainage pattern is dentritic. The unit is mostly used for woodland of pines and mixed hardwoods. Some areas on ridgetops and upper side slopes are used for pasture and crops. Farm ponds are common. Based on the pattern of these landscape elements, visual diversity of this unit is moderate to high. Land use changes would be of moderate to low contrast on the landscape.

This map unit makes up about 20 percent of the county. It is about 40 percent Sweatman soils and 25 percent Smithdale soils. The minor soils are Heidel, Kirkville, Lucy, and Ruston soils.

Sweatman soils are on the ridgetops and side slopes. They are loamy soils that have clayey subsoil that is underlain by strata of loamy material and weathered shale. The Smithdale soils are on the ridges and upper side slopes. They are loamy soils that have a loamy subsoil.

The minor soils are the well drained Ruston soils on the ridgetops, the well drained Lucy and Heidel soils on the side slopes, and the moderately well drained Kirkville soils on the flood plains.

The Sweatman soils on the ridges are poorly suited to cropland and suited to pasture and woodland. The Smithdale soils on the ridges are suited to cropland, pasture, and woodland. The Sweatman and Smithdale soils on the steep side slopes are poorly suited to pasture and suited to woodland. The steepness of slopes and erosion hazard are the main limitations for most uses. Steepness of slopes and shrinking and swelling of the soil with changes in moisture content are limitations for urban uses.

Potential is very poor for wetland wildlife habitat, fair for openland, and good for woodland wildlife habitat.

6. Sweatman-Ora-Smithdale

Deep, well drained and moderately well drained loamy soils; on broad gently sloping ridges and steep side slopes

The landscape is characterized by prominent relief. It consists of hills and ridges that have broad gently sloping and rounded tops that break into steep side slopes. Slopes range from 2 to 35 percent. The drainage pattern is dendritic. Streams, which are mostly intermittent, are in winding channels on narrow flood plains. On steeper slopes, forests of pine or a mixture of pine and hardwoods predominate, but on the ridgetops, forests, pasture, cropland, and farmsteads create mosaic patterns. Farm ponds are common. Based on the pattern of these landscape elements, visual diversity of this unit is moderate to high. Land use changes would be of high contrast on the landscape.

This map unit makes up about 25 percent of the county. It is about 35 percent Sweatman soils, 20 percent Ora soils, 15 percent Smithdale soils, and 30 percent minor soils.

Sweatman soils are on the ridgetops and side slopes. They are well drained soils that have a clayey subsoil that is underlain by strata of loamy material and weathered shale. The Ora soils are on the ridgetops. They are moderately well drained loamy soils that have a loamy subsoil and a fragipan. The Smithdale soils are on the side slopes. They are well drained loamy soils that have a loamy subsoil.

The minor soils are the moderately well drained Savannah soils and well drained Ruston soils on the ridgetops and the moderately well drained Kirkville soils on the narrow flood plains.

On the ridgetops, the Sweatman soils are suited and Ora soils are well suited to cropland and pasture. On the side slopes, the Sweatman and Smithdale soils are poorly suited to cropland and pasture. The steepness of slopes and severe erosion hazard are the main limitations. Shrinking and swelling of the soil with changes in moisture, slow to moderately slow permeability, and steepness of slopes are limitations for urban uses. Potential is very poor for wetland wildlife habitat on Sweatman and Smithdale soils and poor on Ora soils. Potential is fair on Sweatman and Smithdale soils and good on Ora soils for openland wildlife habitat. All three soils have good potential for woodland wildlife habitat.

Deep, excessively drained to poorly drained soils; on terraces and flood plains

This group consists of general soil map units 7, 8, 9, and 10. The major soils are the loamy Bonn Variant, Bibb, Daleville, Jena, Kirkville, and Quitman soils and the sandy Bigbee soils. These soils are on terraces and the flood plains of the larger streams. These soils are excessively drained to poorly drained. Slopes range from 0 to 2 percent. This group makes up about 15 percent of the county.

7. Quitman-Daleville-Jena

Deep, somewhat poorly drained, poorly drained, and well drained loamy soils; on broad nearly level terraces and flood plains

The landscape is characterized by very little relief. It consists of nearly level, low broad terraces and flood plains along the lower courses of larger streams. Slopes range from 0 to 2 percent. Streams are mostly permanent and flow in winding courses. Narrow sloughs, depressions, and shallow drainageways are throughout the landscape. Flooding is frequent in lower areas. This unit is mostly in hardwood forest. Pastures create occasional openings. Structures are few. Based on the pattern of these landscape elements, visual diversity of this unit is generally low. Land use changes would be of high contrast on the landscape.

This map unit makes up about 10 percent of the county. It is about 40 percent Quitman soils, 30 percent Daleville soils, and 15 percent Jena soils. The minor soils are Bigbee, Cahaba, Kirkville, and Vimville soils.

Quitman soils are on low broad terraces. They are somewhat poorly drained loamy soils that have a loamy subsoil which is slightly compact and brittle in the lower part. The Daleville soils are in low terrace areas. They are poorly drained loamy soils that have a loamy subsoil. Jena soils are adjacent to the stream channels on flood plains. They are well drained loamy soils that have a loamy subsoil.

The minor soils are the moderately well drained Kirkville soils on flood plains, the excessively drained Bigbee soils on terraces and flood plains, and the well drained Cahaba soils and poorly drained Vimville soils on the terraces.

The Quitman soils are well suited to cropland, pasture, and woodland. The Daleville soils are suited to pasture, well suited to woodland, and poorly suited to cropland. The Jena soils are poorly suited to cropland, suited to pasture, and well suited to woodland. Wetness and flooding are the main limitations for crops, pasture, and woodland and for urban uses. Potential is good for openland and woodland wildlife habitat and poor for wetland wildlife habitat on Quitman soils. Daleville soils have fair potential for openland wildlife habitat and good potential for woodland habitat and for wetland habitat. Jena soils have fair potential for openland wildlife habitat and for wetland habitat.

8. Bigbee-Bibb

Deep, excessively drained and poorly drained sandy and loamy soils; on nearly level terraces and flood plains

The landscape is characterized by very little relief. It consists of broad, nearly level flood plains and low terraces of large perennial streams winding through fairly broad valleys bounded by bluff like hills. Slopes range from 0 to 2 percent. Occasional low waterfalls and rapids are caused by rock ledges that outcrop in channels. Narrow sloughs, old stream runs, and pools of standing water are numerous across the flood plains. This unit is almost entirely a forest of bottom land hardwoods on the flood plains and mixed hardwoods on the terraces. Because of flooding hazard, farmstead structures are generally absent. This unit with its associated streams is used by fishermen, campers, and canoeists. Based on the pattern of the landscape elements in this unit, visual diversity is high. Land use changes not adjacent to stream systems would be of low contrast.

This map unit makes up less than 1.5 percent of the county. It is about 40 percent Bigbee soils and 30 percent Bibb soils. The minor soils are Cahaba, Kirkville, and Quitman soils.

Bigbee soils are on flood plains and low terraces. They are excessively drained soils that are sandy to a depth of 75 inches or more. Bibb soils are in low depressions, sloughs, and narrow drainageways of the flood plains. They are poorly drained soils that are loamy to 65 inches or more.

The minor soils are the somewhat poorly drained Quitman soils, the well drained Cahaba soils on terraces, and the moderately well drained Kirkville soils on flood plains.

The Bigbee and Bibb soils are poorly suited to cropland and suited to pasture. Both are well suited to woodland. Droughtiness of the Bigbee soils, wetness of the Bibb soils and flooding of both are the main limitations for most uses. Flooding and wetness are limitations for urban uses. The Bigbee soils have a fair potential for openland wildlife habitat, poor potential for woodland habitat, and very poor potential for wetland habitat. The Bibb soils have a fair potential for openland and woodland wildlife habitat and good potential for wetland wildlife habitat.

9. Kirkville-Bibb

Deep, moderately well drained and poorly drained loamy soils; on broad nearly level flood plains

The landscape is characterized by very little relief. It consists of nearly level flood plains. Slopes range from 0 to 2 percent. Depressions and shallow drainageways are common, and some have standing water except during droughts. All of the unit is forested. Bottom land hardwoods are dominant. A few pines are on higher elevations. Based on the pattern of these landscape elements, visual diversity of this unit is low. Land use changes would be of high contrast on the landscape.

This map unit makes up less than 2.5 percent of the county. It is about 40 percent Kirkville and 30 percent Bibb soils. The minor soils are Jena, Prentiss, and Quitman soils.

Kirkville soils are on flat areas of flood plains adjacent to the stream channel. They are moderately well drained loamy soils that have a loamy subsoil. Bibb soils are in low depressions and narrow drainageways of flood plains. They are poorly drained soils that are loamy to 65 inches or more.

The minor soils are the well drained Jena soils on flood plains, the moderately well drained Prentiss soils, and the somewhat poorly drained Quitman soils on stream terraces.

The Kirkville and Bibb soils are poorly suited to cropland and are suited to pasture. They are well suited to woodland. Flooding and wetness are the main limitations for most uses. Potential is fair for openland wildlife habitat. Kirkville soils have good potential and Bibb soils have fair potential for woodland wildlife habitat. The Kirkville soils have poor potential for wetland wildlife habitat and Bibb soils have good potential.

10. Daleville-Jena-Bonn Variant

Deep, poorly drained and well drained loamy soils; on broad nearly level terraces and flood plains

The landscape is characterized by little relief. It is nearly level low terraces and narrow flood plains. Slopes range from 0 to 2 percent. Depressions, narrow sloughs, and shallow drainageways are common; many of these have standing water much of the year. Most of the area is a forest of bottom land hardwoods. Pines are scattered in higher areas that have better surface drainage. Occasional areas are used for pasture. Buildings are generally absent. Based on the pattern of these landscape elements, visual diversity of this unit is low. Land use changes would be of high contrast on the landscape.

This map unit makes up about 1 percent of the county. It is about 35 percent Daleville soils, 20 percent Jena soils, 15 percent Bonn Variant soils, and 30 percent minor soils.

Daleville soils are on low terraces. They are poorly drained loamy soils that have a loamy subsoil. The Jena soils are adjacent to the stream channel on flood plains. They are well drained loamy soils that have a loamy subsoil. Bonn Variant soils are on broad, depressional, low terrace areas of flood plains. They are poorly drained loamy soils that have a loamy subsoil.

The minor soils are the somewhat poorly drained Quitman soils and the moderately well drained Annemaine soils on higher terrace positions, the moderately well drained Kirkville soils near the stream channels on flood plains, and the poorly drained Vimville soils on lower depressional areas of stream terraces.

The Daleville and Jena soils are suited to pasture, poorly suited to cropland, and well suited to woodland. Bonn Variant soils are poorly suited to cropland, pasture, and woodland. Flooding and wetness are the main limitations. Flooding and wetness are the main limitations for urban uses. Potential is fair for openland wildlife habitat and good for woodland wildlife habitat on Daleville and Jena soils. Potential is good for wetland wildlife habitat on Daleville soils and is poor on Jena soils. Bonn Variant soils have poor potential for openland and woodland habitat and fair potential for wetland wildlife habitat.

broad land use considerations

The soils of Lauderdale County vary widely in their suitability and limitations for major land uses. About 9,500 acres, or 2 percent of Lauderdale County, is in row crops, and about 30,800 acres, or 7 percent, is in pasture. Several areas are suited to farming. These areas are identified as general map units 2, 4, 6, and 7. On the soils in map units 2, 4, and 6, the hazard of erosion and steepness of slopes are the major limitations for growing crops. In these units, the dominant soils are McLaurin, Ora, Ruston, and Sweatman soils. Wetness is the major limitation for unit 7; soils are rarely flooded. The major soils in map unit 7 are the Daleville and Quitman soils.

Pasture and hay crops can be grown on the soils in map units 2, 4, 5, 6, 7, and 9. However, the majority of soils in map units 2, 4, 5, and 6 are sloping to steep. The dominant soils of these units are McLaurin, Ora, Ruston, and Sweatman soils. Wetness is the main limitation of Bibb, Daleville, Kirkville, and Quitman soils in map units 7 and 9.

Most of the soils of the county are well suited or suited to woodland. Arundel and Lauderdale soils are underlain by siltstone and buhrstone that restricts the rooting depth. Wetness is the main limitation in managing and harvesting the tree crop on soils in map units 7, 8, 9, and 10.

About 17,000 acres, or about 4 percent, of the county is urban or built-up land. In general, the soils on the gently sloping ridges of map units 2, 4, 5, and 6 have slight to moderate limitations for urban uses. Slopes, clayey texture, and low strength for local streets and roads are the main limitations. The Ora and Sweatman soils of map units 5 and 6 have moderately slow permeability and are severely limited for use as septic tank absorption fields. Soils in map units 1 and 3 have severe limitations for urban development. Depth to bedrock and high shrink-swell potential are the main limitations. Certain sites within these areas are suited to houses and small commercial buildings. Soils in map units 7, 8, 9, and 10 have severe limitations for urban uses because of wetness and flooding. However, some areas that are higher in elevation are suited for home sites and small commercial buildings, but wetness is a concern.

Most soils in the county have slight or moderate limitations for recreational uses. Those soils in map units 6, 7, 9, and 10 are on flood plains, and wetness and flooding are limitations. The soils in units 1, 2, and 3 are hilly. Because of steepness of slope, a clayey subsoil, or stoniness, these soils are limited for intensive recreational uses, but they are suitable for such activities as hunting, hiking, and horseback riding. There are areas within all map units that are suitable for campsites and picnic areas. Potential for wildlife habitat is discussed in the section "Use and management of the soils".

detailed soil map units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and management of the soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Sweatman fine sandy loam, 2 to 5 percent slopes, eroded, is one of several phases in the Sweatman series.

Some map units are made up of two or more major soils. These map units are called soil complexes, soil associations, or undifferentiated groups.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Sweatman-Smithdale complex, 5 to 25 percent slopes, is an example.

A *soil association* is made up of two or more geographically associated soils that are shown as one unit on the maps. Because of present or anticipated soil uses in the survey area, it was not considered practical or necessary to map the soils separately. The pattern and relative proportion of the soils are somewhat similar. Arundel-Lauderdale association, hilly, is an example.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

Descriptions of the detailed soil map units follow.

Aa—Annemaine fine sandy loam. This is a deep, moderately well drained, nearly level soil on terraces near streams. This soil is rarely flooded. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark brown fine sandy loam about 6 inches thick. The subsoil, to a depth of about 10 inches, is strong brown clay loam. To about 16 inches, it is yellowish red clay. To a depth of about 24 inches, it is yellowish red clay loam mottled in shades of gray. To about 36 inches, it is clay loam mottled in shades of gray, brown, and red. To about 50 inches, it is sandy clay loam mottled in shades of gray, brown, and red. The underlying material to a depth of 80 inches is sandy loam and loamy sand mottled in shades of gray, brown, and yellow.

This soil is low in natural fertility. Reaction ranges from very strongly acid to slightly acid in the surface layer except where limed, and reaction is very strongly acid or strongly acid in the subsoil. Permeability is slow, and the high water table fluctuates between depths of 1 1/2 and 2 1/2 feet late in winter and early in spring. Available

water capacity is high. Runoff is slow to medium, and erosion is a slight hazard. Seedbed preparation in spring may be delayed because of wetness.

Included with this soil in mapping are small areas of Cahaba soils in slightly higher positions and small areas of Quitman soils in similar positions. Also included is a soil in a few low lying areas that are flooded for brief periods almost every year. These included soils make up about 10 to 15 percent of the map unit.

Most of the acreage is used for pasture or row crops; some is used as woodland. This soil is well suited to row crops. Returning crop residue to the soil and surface drainage are needed. This soil is well suited to pasture grasses and legumes. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is suited to loblolly pine, slash pine, yellow-poplar, and sweetgum. Seasonal wetness is the main limitation in managing and harvesting the tree crop, but this limitation can be partly overcome by harvesting during the drier seasons.

The seasonal high water table, flooding, and slow permeability are severe limitations to urban uses and septic tank absorption fields.

This Annemaine soil is in capability subclass IIw and in woodland suitability group 3w8.

AbD—Arundel-Sweatman complex, 8 to 12 percent slopes. This map unit consists of strongly sloping Arundel and Sweatman soils in small areas that are so intermingled that mapping the soils separately was not practical. The soils are well drained. Arundel soils are underlain by stratified siltstone, sandstone, and buhrstone. Sweatman soils are underlain by shaly clay. Areas of this map unit range from 10 to 40 acres.

The Arundel soil makes up about 40 percent of the unit. Typically, loose stones are on the surface. The surface layer is dark grayish brown sandy loam about 4 inches thick. The upper part of the subsoil, to a depth of about 10 inches, is brown sandy loam. Fragments of sandstone make up about 3 percent of the volume. The lower part of the subsoil, to about 30 inches, is yellowish red clay. Fragments of sandstone, siltstone, and buhrstone make up about 15 percent of the volume. The underlying material to a depth of 45 inches is stratified sandstone, siltstone, and buhrstone. This material can be cut with a shovel in fresh exposures.

Arundel soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is very slow above the weathered bedrock. The available water capacity is medium. Runoff is medium to rapid, and erosion is a severe hazard.

The Sweatman soil makes up about 30 percent of the unit. Typically, the surface layer is dark grayish brown fine sandy loam about 2 inches thick. The subsurface layer is brown fine sandy loam to a depth of about 5 inches. The upper part of the subsoil, to about 26 inches, is yellowish red clay. The lower part, to about 38 inches, is yellowish red silty clay. The underlying material to a depth of 65 inches is stratified shale and loamy material mottled in shades of brown, gray, and red.

Sweatman soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderately slow. Available water capacity is high. Runoff is medium to rapid, and erosion is a severe hazard.

Included in mapping are a few areas of McLaurin soils on ridges and areas of Heidel and Smithdale soils on side slopes.

Most of the acreage is used for pasture or is in woodland. These soils are poorly suited to row crops because of steepness of slopes and rocks on the surface. Arundel soils are poorly suited to pasture grasses and legumes, and Sweatman soils are suited to pasture plants. Rock fragments on the surface interfere with the use of equipment during harvest. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

These soils are suited to loblolly and shortleaf pine. Equipment use limitations are moderate. In wet seasons, equipment can cause ruts on Sweatman soils. Runoff flowing into the ruts may lead to the formation of gullies.

These soils are poorly suited to most urban uses because the subsoil swells and shrinks with changes in moisture. The very slow permeability and depth to bedrock are severe limitations for septic tank absorption fields on Arundel soils, and the moderately slow permeability is a severe limitation on Sweatman soils.

These Arundel and Sweatman soils are in capability subclass VIe and in woodland suitability group 3c2.

AL—Arundel-Lauderdale association, hilly. This unit consists of well drained soils that overlie stratified sandstone, siltstone, and buhrstone. The landscape is dissected uplands consisting of high hills that have narrow ridgetops, steep side slopes, and narrow drainageways. These soils are in a regular and repeating pattern. The Arundel soils are on ridgetops and side slopes. The Lauderdale soils are primarily on the ridgetops. Slopes range from 5 to 35 percent. Areas range from 160 to 1,200 acres.

The Arundel soils make up about 60 percent of the map unit. Typically, loose stones are on the surface. The surface layer is very dark gray loam about 6 inches thick and contains about 3 percent fragments of sandstone. The subsoil is dark yellowish brown clay to a depth of

about 38 inches. Fragments of sandstone, siltstone, or buhrstone make up about 15 percent of the volume. The underlying material to a depth of about 45 inches or more, is stratified sandstone, siltstone, and buhrstone. In a fresh exposure this material can be cut with a spade.

Arundel soils are low in natural fertility. Reaction is very strongly acid or strongly acid throughout. Permeability is very slow above the weathered bedrock. Available water capacity is medium. Runoff is rapid, and erosion is a severe hazard.

The Lauderdale soils make up about 35 percent of the map unit. Typically, the surface layer is dark grayish brown fine sandy loam about 3 inches thick. The subsurface layer is pale brown fine sandy loam that has brownish mottles to a depth of about 7 inches. The subsoil is yellowish brown loam that has yellowish mottles to about 17 inches and contains about 5 percent fragments of sandstone, siltstone, or buhrstone. The underlying material to a depth of 25 inches or more is stratified sandstone, siltstone, or buhrstone. In fresh exposures this material can be cut with a spade.

Lauderdale soils are low in natural fertility. Reaction is very strongly acid or strongly acid throughout. Permeability is moderately slow above the weathered bedrock. Available water capacity is medium. Runoff is rapid, and erosion is a severe hazard.

Included in mapping are areas of Sweatman and Smithdale soils on ridges and side slopes and a few small areas that have slopes from 35 to 45 percent.

Most of the acreage is used for woodland. These soils are poorly suited to row crops or pasture because of steepness of slopes or the depth to bedrock.

Arundel soils are suited to loblolly, shortleaf, and slash pines (fig. 1); Lauderdale soils are poorly suited because the shallow bedrock restricts rooting depth. On Lauderdale soils, however, loblolly and shortleaf pine are among the better adapted trees. The steepness of slopes moderately limits the use of equipment on Arundel and Lauderdale soils. This can be partly overcome by locating skid trails, log landings, and haul roads properly and within limiting grades. When harvesting is completed, water bars are needed on all sloping roads to prevent gully erosion. Roads should be seeded to grass to prevent erosion.

These soils are poorly suited to most urban uses because of the steepness of slopes. Also, the subsoil in the Arundel soils shrinks and swells with changes in moisture. Depth to bedrock, very slow and moderately slow permeability, and the steepness of slopes are severe limitations for the use of these soils for septic tank absorption fields.

These Arundel and Lauderdale soils are in capability subclass VIIe. Arundel soils are in woodland suitability group 3c2, and Lauderdale soils are in woodland suitability group 4d2.

AR—Arundel-Smithdale-Williamsville association, hilly. This map unit consists of well drained Arundel, Smithdale, and Williamsville soils. Arundel soils, on side slopes and lower lying ridgetops, are underlain by stratified sandstone, siltstone, and buhrstone. Smithdale and Williamsville soils, on higher ridgetops and upper slopes, are underlain by thick sandy marine sediments. The landscape is narrow ridgetops, steep side slopes, and narrow drainageways on dissected uplands. These soils are in a regular and repeating pattern. Slopes range from 5 to 25 percent. Areas range from 500 to 2,500 acres.

The Arundel soils and similar soils make up about 42 percent of the map unit. Typically, many loose stones are on the surface. The surface layer is dark grayish brown sandy loam about 4 inches thick. The subsurface layer, to a depth of about 7 inches, is brown sandy loam. The upper part of the subsoil, to about 16 inches, is strong brown clay. The lower part of the subsoil, to a

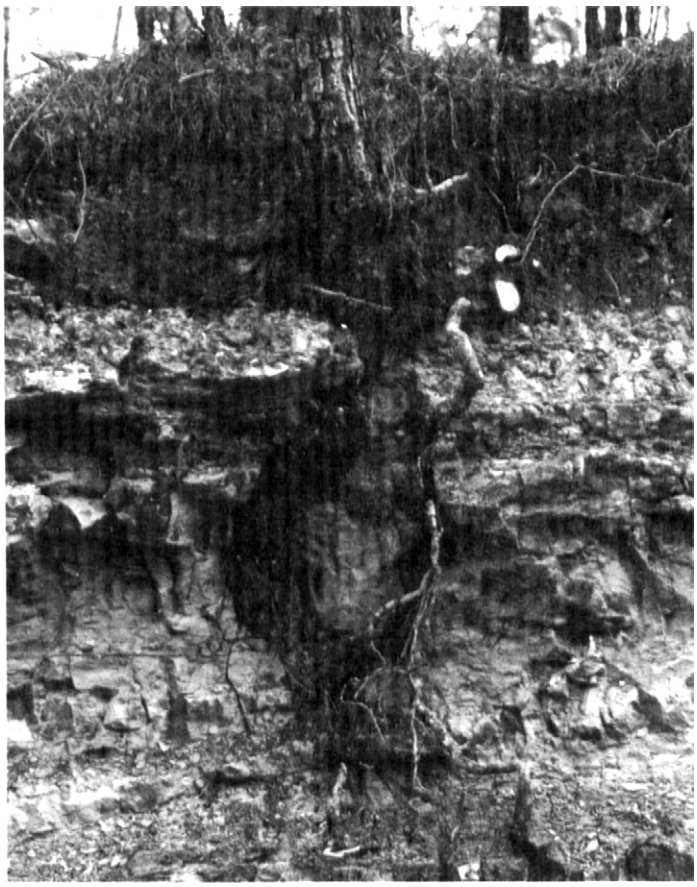


Figure 1.—Roadside cut showing a profile of Arundel soil in the Arundel-Lauderdale association, hilly. The roots of a pine tree are growing into the underlying sandstone, siltstone, and buhrstone.

depth of about 28 inches, is dark brown clay that has very pale brown mottles; it is about 15 percent, by volume, fragments of sandstone, siltstone, and buhrstone. The underlying material is stratified sandstone, siltstone, and buhrstone. In fresh exposures this material is soft and can be cut with a spade.

Arundel soils are low in natural fertility. They are very strongly acid or strongly acid throughout. Permeability is very slow. Available water capacity is medium. Runoff is rapid, and erosion is a severe hazard.

The Smithdale soils and similar soils make up about 31 percent of the map unit. Typically, the surface layer is dark grayish brown fine sandy loam about 4 inches thick. The subsurface layer is yellowish brown sandy loam to a depth of about 10 inches. The subsoil to a depth of about 24 inches is red clay loam. To a depth of about 40 inches, it is a red loam. To a depth of about 55 inches, it is red sandy loam. The lower part of the subsoil to a depth of 62 inches is yellowish red sandy loam that has pockets of uncoated sand grains.

Smithdale soils are low in natural fertility. Reaction is very strongly acid or strongly acid throughout. Permeability is moderate. The available water capacity is medium. Runoff is medium to rapid, and erosion is a severe hazard.

The Williamsville soils make up about 27 percent of the map unit. Typically, the surface layer is reddish brown sandy loam about 4 inches thick. The upper part of the subsoil, to a depth of about 38 inches, is dark red sandy clay. To a depth of about 52 inches, it is red sandy clay loam. The lower part of the subsoil to a depth of 62 inches or more is dark red loam.

Williamsville soils are low in natural fertility. Reaction is very strongly acid or strongly acid throughout. Permeability is moderately slow. The available water capacity is high. Runoff is rapid, and erosion is a severe hazard.

Most of the acreage of this unit is used as woodland. The soils are poorly suited to row crops because of steepness of slopes and the severe erosion hazard. The soils are poorly suited to pasture.

Arundel and Smithdale soils are suited and Williamsville soils are well suited to loblolly and shortleaf pine (fig. 2). Equipment use limitations on these soils are moderate because of the steepness of slopes. This can be partly overcome by harvesting in drier seasons and by locating skid trails, log landings, and haul roads properly and within limiting grades. Water bars constructed on all sloping log and skid roads after harvesting help prevent gully formation. Roads should be seeded to grass.

These soils are poorly suited to most urban uses because of rolling to hilly topography and steep side slopes. Some Smithdale soils on ridgetops are suited to use as dwelling sites. In most areas, the soils in this association have severe limitations for septic tank

Figure 2.—Area of Arundel-Smithdale-Williamsville association, hilly, that has been clear cut and planted back to loblolly pine.

absorption fields. Depth to bedrock is a limitation on Arundel soils; steepness of slopes is a limitation on Smithdale soils; and steepness of slopes and moderately slow permeability are limitations on Williamsville soils. Smithdale soils on rolling hilltops have slight or moderate limitations for septic tank absorption fields if the slope is less than 15 percent.

These Arundel, Smithdale, and Williamsville soils are in capability subclass VIIe. Arundel soils are in woodland suitability group 3c2, Smithdale soils in group 3o1, and Williamsville soils in group 2o1.

AS—Arundel-Sweatman-Smithdale association, hilly. This unit consists of well drained Arundel, Sweatman, and Smithdale soils. The landscape is mainly ridgetops, steep side slopes, and narrow drainageways. Arundel soils, on the lower slopes, are moderately deep and underlain by stratified sandstone, siltstone, and buhrstone. Sweatman soils, on the middle slopes, have a substratum of shaly clay. Smithdale soils, on the ridgetops and upper side slopes, have a substratum of thick sandy material. The soils are in a regular and repeating pattern. Slopes range from 5 to 35 percent. Areas range from 160 to 2,000 acres.

The Arundel soils and similar soils make up about 45 percent of the map unit. Typically, an abundance of loose stones is on the surface. The surface layer is very dark grayish brown sandy loam about 5 inches thick. The upper part of the subsoil, to a depth of about 20 inches, is yellowish brown clay containing 2 percent fragments of sandstone. The next layer, to a depth of about 30 inches, is yellowish brown clay that has pale brown mottles; it contains about 15 percent, by volume, fragments of buhrstone, sandstone, and siltstone. The underlying material to a depth of 45 inches is stratified sandstone, siltstone, and buhrstone. In fresh exposures this material can be cut with a spade.

Arundel soils are low in natural fertility. Reaction is very strongly acid or strongly acid throughout. Permeability is very slow above the weathered bedrock. The available water capacity is medium. Runoff is rapid, and erosion is a severe hazard.

The Sweatman soils and similar soils make up about 25 percent of the map unit. Typically, the surface layer is very dark grayish brown fine sandy loam about 5 inches thick. The upper part of the subsoil, to a depth of about 25 inches, is yellowish red clay. The lower part, to a depth of about 37 inches, is yellowish red clay that has mottles in shades of brown and gray. The underlying material to a depth of 60 inches or more is strata of loamy material in shades of red and brown and gray weathered shale.

Sweatman soils are low in natural fertility. Reaction is very strongly acid or strongly acid throughout. Permeability is moderately slow. Available water capacity is high. Runoff is rapid, and erosion is a severe hazard.

The Smithdale soils and similar soils make up about 22 percent of the map unit. Typically, the surface layer is dark grayish brown fine sandy loam about 5 inches thick. The subsurface layer is yellowish brown fine sandy loam and extends to a depth of about 12 inches. The upper part of the subsoil, to a depth of about 40 inches, is red sandy clay loam. The lower part to a depth of 70 inches or more is red sandy loam that has pockets of uncoated sand grains.

Smithdale soils are low in natural fertility. Reaction is very strongly acid or strongly acid throughout. Permeability is moderate. The available water capacity is medium. Runoff is rapid, and erosion is a severe hazard.

Included in mapping are small areas of Lucy soils on the side slopes.

Most of the acreage is used as woodland. These soils are poorly suited to row crops and pasture because of the steepness of slopes and, in areas of the Arundel soils, moderate depth to bedrock.

The soils are suited to loblolly and shortleaf pine trees. The steepness of slopes moderately limits the use of equipment. But this limitation can be partly overcome by harvesting in drier seasons and by locating skid trails, log landings, and haul roads properly and within limiting grades. When harvesting is completed, water bars are needed on all sloping roads to prevent erosion and formation of gullies. Roads should be seeded to a protective cover of grass to prevent erosion.

Most of the acreage is poorly suited to most urban uses because of the rolling and steep, hilly topography. Some ridgetops of Smithdale soils are suited to dwelling sites. Most of the soils have severe limitations for use as septic tank absorption fields. The limitations are depth to bedrock, slow permeability, and steepness of slopes on Arundel soils; steepness of slopes and moderately slow permeability on Sweatman soils; and steepness of slopes on Smithdale soils. However, on some Smithdale soils, ridgetops have slopes of less than 15 percent and these areas have slight to moderate limitations for septic tank absorption fields.

These soils are in capability subclass VIIe; Arundel and Sweatman soils are in woodland suitability group 3c2, and Smithdale soils are in woodland suitability group 3o1.

Ba—Bigbee loamy sand, occasionally flooded. This is a deep, excessively drained, nearly level soil on terraces along streams. This soil is flooded less often than once in 2 years for brief periods during winter and spring. Slopes range from 0 to 2 percent.

Typically, the surface layer is a dark yellowish brown loamy sand about 8 inches thick. The underlying material to a depth of about 18 inches is strong brown loamy sand. To about 50 inches, it is brownish yellow loamy sand that has pockets of uncoated sand grains. Brown mottles are below about 38 inches. To a depth of 75 inches or more, it is light yellowish brown fine sand that has brown mottles.

This soil is very low in natural fertility. Reaction ranges from very strongly acid to medium acid throughout

except where the surface layer has been limed. Permeability is rapid, and the water table fluctuates between depths of 3 1/2 and 6 feet in winter and early in spring. Available water capacity is low. Runoff is slow, and erosion is a slight hazard. This soil is droughty.

Included in mapping are small areas of Jena soils in slightly lower positions and small areas of Cahaba soils on stream terraces. The included soils make up about 10 to 15 percent of the map unit.

Most of the acreage is used for pasture and row crops, but some areas are used as woodland. This soil is poorly suited to row crops and suited to pasture grasses. Returning crop residue to the soil and crop rotation are needed. Pasture management includes fertilizing, proper stocking, controlled grazing, and weed and brush control.

This soil is well suited to loblolly and shortleaf pine. Limitations are slight, but complete site preparation, including root raking and chopping with a mechanical chopper, is needed for tree planting.

Flooding severely limits the soil for urban uses and septic tank absorption fields.

This Bigbee soil is in capability subclass IIIs and in woodland suitability group 2s8.

BB—Bigbee-Bibb association, frequently flooded. This unit consists of deep, nearly level, excessively drained Bigbee soils and poorly drained Bibb soils on flood plains. Most areas of these soils are flooded for brief periods in winter and spring. Some sloughs and depressional areas on the flood plains are ponded for several months following excessive rainfall. Bigbee and Bibb soils are in a regular pattern on the landscape. Bigbee soils are on broad areas near the streams. Bibb soils are mostly adjacent to the hills on slightly lower positions and in old channels. Slopes range from 0 to 2 percent. Areas range from 160 to more than 1,000 acres.

The Bigbee soils and similar soils make up about 45 percent of the unit. Typically, the surface layer is a brown loamy sand about 4 inches thick. The layer below that is yellowish brown loamy sand to a depth of about 11 inches. The underlying material to a depth of about 19 inches is yellowish brown loamy sand that has pockets of pale brown uncoated sand grains. To a depth of about 30 inches, it is light yellowish brown loamy sand that has pockets of pale brown uncoated sand. To a depth of about 46 inches, it is pale brown fine sand that has pockets of uncoated sand grains. The underlying material to a depth of 65 inches or more is yellowish brown fine sand that has pockets of uncoated sand grains.

Bigbee soils are very low in natural fertility. Reaction ranges from very strongly acid to medium acid throughout. Permeability is rapid, and the water table fluctuates between depths of 3 1/2 and 6 feet below the surface in winter and early in spring. Available water capacity is low. Runoff is slow, and erosion is a slight hazard.

The Bibb soils and similar soils make up about 30 percent of the map unit. Typically, the surface layer is dark grayish brown fine sandy loam about 2 inches thick and gray fine sandy loam to a depth of about 5 inches. The layer below that, to about 12 inches, is gray fine sandy loam that has yellowish red mottles. The next layer, to about 30 inches, is gray fine sandy loam mottled in shades of brown and red. The underlying material to a depth of 65 inches or more is gray fine sandy loam mottled in shades of brown.

Bibb soils are low in natural fertility. They are very strongly acid or strongly acid throughout. Permeability is moderate, and the water table fluctuates between depths of 1/2 foot and 1 1/2 feet below the surface in winter and early in spring. Available water capacity is medium. Runoff is slow, and erosion is a slight hazard.

Included soils make up about 25 percent of the map unit. These are the well drained Cahaba and the moderately well drained Kirkville and Prentiss soils. The Cahaba and Prentiss soils are in slightly higher positions.

These Bigbee and Bibb soils are used as woodland. The soils are poorly suited to row crops. Limitations include low available water capacity, wetness, and frequent flooding. The soils are moderately suited to pasture. Wetness and flooding are the main limitations. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

Bigbee soils are well suited to loblolly pine, and Bibb soils are well suited to loblolly pine, sweetgum, willow oak, water oak, cherrybark oak, and yellow-poplar. Seasonal wetness is a severe limitation, but this can be partly overcome by harvesting during the drier seasons. Complete site preparation, including root raking and chopping with a mechanical chopper, is needed for tree planting. Benefits of site preparation do not extend beyond one growing season. Natural regeneration of hardwood species is rapid.

These Bigbee and Bibb soils have severe limitations for urban uses and septic tank absorption fields because of wetness and flooding.

Bigbee soils are in capability subclass Vw and in woodland suitability group 2s8. Bibb soils are in capability subclass Vw and in woodland suitability group 2w9.

Bo—Bonn Variant loam, occasionally flooded. This is a deep, poorly drained, nearly level soil that has high levels of exchangeable sodium. It is on broad low terraces. This soil is flooded less often than once in 2 years for brief to long periods during winter and spring months. Slopes range from 0 to 1 percent.

Typically, the surface layer is very dark grayish brown loam about 3 inches thick. The next layer, to a depth of about 5 inches, is mottled light gray and grayish brown loam. The upper part of the subsoil, to about 28 inches, is gray loam mottled in shades of yellow and brown. The lower part, to about 38 inches, is sandy clay loam

mottled in shades of yellow and brown. The underlying material to a depth of 62 inches or more is fine sandy loam mottled in shades of gray, yellow, and brown.

This soil is low in natural fertility. Reaction ranges from very strongly acid to neutral in the surface layer, and the subsoil ranges from medium acid to strongly alkaline. Permeability is very slow; the water table is at or near the surface in wet seasons. Available water capacity is low. Runoff is slow, and erosion is a slight hazard. Flooding may occur following prolonged, heavy rainfall.

Included in mapping is a soil that is similar but is on higher positions and is more acid in the upper part of the subsoil than this Bonn Variant soil. Also included are a few areas of Quitman and Vimville soils on terraces. The included soils make up about 30 to 40 percent of this map unit.

This Bonn Variant soil is poorly suited to commercial timber production. All of the soil is in low grade hardwoods, loblolly pine, and spruce pine. Wetness limits the use of equipment in managing and harvesting. Harvesting during dry seasons prevents root damage by skidders during log removal.

This map unit is poorly suited to row crops and pasture because of wetness, flooding, and some toxicity to plants caused by the exchangeable sodium content.

This soil is severely limited for urban uses and septic tank absorption fields because of wetness, flooding, and very slow permeability.

This Bonn Variant soil is in capability subclass Vw and in woodland suitability group 5t2.

CaA—Cahaba fine sandy loam, 0 to 2 percent slopes. This is a deep, well drained, nearly level soil on stream terraces.

Typically, the surface layer is dark grayish brown fine sandy loam about 2 inches thick. The subsurface layer is a brown fine sandy loam to a depth of about 8 inches. The upper part of the subsoil, to about 12 inches, is a yellowish red loam. To about 24 inches, the subsoil is red clay loam. The lower part, to about 40 inches, is yellowish red loam. The underlying material to a depth of 65 inches or more is yellowish brown loamy fine sand that has pockets of uncoated sand grains.

This soil is low in natural fertility. Reaction ranges from very strongly acid to medium acid throughout except where the surface layer has been limed. Permeability is moderate. Available water capacity is medium. Runoff is slow to medium, and erosion is a slight hazard.

Included in mapping are small areas of Annemaine and Prentiss soils on terraces. Also included are lower lying areas of Cahaba soils on terraces that are flooded occasionally. Included soils make up about 10 to 15 percent of this map unit.

Most of the acreage of this unit is used for pasture or row crops; some areas are used as woodland. The soil is well suited to row crops and pasture grasses and legumes. Returning crop residue to the soil, minimum tillage, and crop rotation are needed. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is well suited to loblolly pine, yellow-poplar, sweetgum, southern red oak, white oak, and cherrybark oak. Limitations are slight.

This soil is well suited to most urban uses. Septic tank absorption fields function well on this soil; however, rapid permeability in the underlying material may cause poor filtering action, and the resulting pollution could affect local streams.

This Cahaba soil is in capability class I and in woodland suitability group 2o7.

Da—Daleville loam, occasionally flooded. This is a deep, poorly drained, nearly level soil on broad stream terraces. The soil is occasionally flooded for brief periods, mostly in winter and spring. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark grayish brown loam about 6 inches thick. The subsurface layer is light brownish gray loam to a depth of about 16 inches. The upper part of the subsoil, to about 24 inches, is gray loam that has yellowish brown mottles. The next layer, to about 40 inches, is a gray clay loam mottled in shades of brown. The lower part of the subsoil to a depth of 70 inches or more is gray clay loam mottled in shades of brown, yellow, and red.

This soil is low in natural fertility. Reaction ranges from very strongly acid to slightly acid in the surface layer except in limed areas. The subsoil is very strongly acid or strongly acid. Permeability is slow, and the water table fluctuates near the surface in winter and spring. Available water capacity is high. Runoff is slow, and erosion is a slight hazard.

Included in mapping are small areas of Vimville and Quitman soils on terraces. The included soils make up about 10 to 15 percent of the map unit.

Most of the acreage is in woodland, but some areas are used for pasture. This soil is well suited to pasture grasses and legumes and suited to row crops. Pasture management includes surface field ditches, proper stocking, controlled grazing, and weed and brush control. Grazing is restricted during wet periods. Wetness and flooding are the main limitations for row crops. Surface field ditches and returning crop residue to the soil are needed.

This soil is well suited to loblolly pine, sweetgum, and green ash. The use of equipment is limited during wet seasons.

The limitation of this soil for urban uses and septic tank absorption fields is severe because of flooding, wetness, and slow permeability.

This Daleville soil is in capability subclass IIIw and in woodland suitability group 2w9.

DJ—Daleville-Jena association, frequently flooded. This unit consists of deep, nearly level, poorly drained Daleville soils and well drained Jena soils on flood plains

along major streams. These soils are flooded more often than once in 2 years. Depressional areas and sloughs often remain under water for several months, but mostly they are flooded for periods of shorter duration. Flooding is most likely in winter and spring, but may occur any time of the year following heavy rainfall. These soils are in a regular and repeating pattern. Daleville soils are on broad low stream terraces, and Jena soils are on flood plains adjacent to the stream channels. Slopes range from 0 to 2 percent. Areas range from 160 to 800 acres.

The Daleville soils and similar soils make up about 50 percent of the map unit. Typically, the surface layer is dark grayish brown loam about 3 inches thick. The subsurface layer is light brownish gray loam to a depth of about 12 inches. The upper part of the subsoil, to about 26 inches, is gray clay loam that has yellowish brown mottles. The next layer, to about 36 inches, is gray clay loam mottled in shades of yellow and brown. The lower part to a depth of 60 inches or more is a gray clay loam mottled in shades of yellow and red.

Daleville soils are low in natural fertility. Reaction ranges from very strongly acid to slightly acid in the surface layer and very strongly acid or strongly acid in the subsoil. Permeability is slow. Available water capacity is high, and the water table fluctuates near the surface in winter and spring. Runoff is very slow, and erosion is a slight hazard.

The Jena soils and similar soils make up about 25 percent of this unit. Typically, the surface layer is dark brown fine sandy loam about 4 inches thick. The upper part of the subsoil, to a depth of about 24 inches, is yellowish brown fine sandy loam that has light yellowish brown mottles. The lower part, to about 34 inches, is light yellowish brown fine sandy loam that has brownish mottles. The underlying material to a depth of 60 inches or more is loam mottled in shades of gray, brown, and yellow.

The Jena soils are low in natural fertility. Reaction ranges from very strongly acid to medium acid in the surface layer and very strongly acid or strongly acid in the subsoil. Permeability is moderate. Available water capacity is medium. Runoff is slow, and erosion is a slight hazard.

Included in mapping are small areas of Bibb soils on flood plains, Cahaba and Quitman soils on terraces, and somewhat poorly drained loamy soils on terraces.

The soils in this association are used as woodland. The soils are poorly suited to row crops because of wetness and flooding. The soils are suited to pasture and forage plants, but wetness and flooding restrict the selection of plants and at times restrict grazing or the use of equipment. Pasture management includes surface field ditches, proper stocking, controlled grazing, and weed and brush control.

The soils of this unit are well suited to loblolly pine, sweetgum, American sycamore, southern red oak, water oak, and white oak. Wetness severely limits the use of equipment, but this can be partly overcome by harvesting during the drier seasons.

These soils have severe limitations for urban uses and for septic tank absorption fields because of wetness and flooding.

These Daleville and Jena soils are in capability subclass Vw. Daleville soils are in woodland suitability group 2w9; Jena soils are in woodland suitability group 1w9.

EaB—Eustis loamy sand, 0 to 5 percent slopes. This is a deep, somewhat excessively drained, nearly level to gently sloping soil on ridgetops on the uplands.

Typically, the surface layer is very dark grayish brown loamy sand about 6 inches thick. The subsurface layer is dark yellowish brown loamy sand to a depth of about 14 inches. The upper part of the subsoil, to about 26 inches, is strong brown loamy sand. The lower part, to about 64 inches, is yellowish red loamy sand. The underlying material to a depth of about 70 inches or more is reddish yellow sand containing pockets of uncoated sand grains.

This soil is low in natural fertility. Reaction is very strongly acid or strongly acid except where the surface layer has been limed. Permeability is rapid. Available water capacity is low. Runoff is slow, and erosion is a slight hazard.

Included in mapping are small areas of Lakeland, McLaurin, and Lucy soils on uplands. The included soils make up about 10 to 15 percent of this map unit.

Most of the acreage is used as woodland, but some areas are used for pasture and row crops. This soil is suited to row crops and pasture. Returning crop residue to the soil, minimum tillage, crop rotation, and contour farming are needed. Pasture management includes proper stocking, controlled grazing, fertilizing, and weed and brush control.

This soil is suited to loblolly and longleaf pine. The use of equipment with wheels is limited because of poor traction on the sandy surface.

This soil is well suited to most urban uses. Although septic tanks function well in this soil, rapid permeability may result in poor filtering action for onsite sewage disposal systems and may be a source of pollution to shallow ground water and nearby streams.

This Eustis soil is in capability subclass IIIs and in woodland suitability group 3s3.

Ja—Jena fine sandy loam, frequently flooded. This is a deep, well drained, nearly level soil on narrow flood plains. This soil is flooded for brief periods more often than once in 2 years, mostly in winter and spring. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark grayish brown fine sandy loam about 4 inches thick. The upper part of the subsoil, to a depth of about 18 inches, is dark brown fine sandy loam. The lower part, to about 38 inches, is yellowish brown fine sandy loam that has light yellowish

brown mottles between depths of 26 inches and 38 inches. The underlying material to a depth of about 65 inches or more is yellowish brown loamy fine sand that has brownish mottles.

This soil is low in natural fertility. Reaction ranges from very strongly acid to medium acid in the surface layer, except where the surface layer has been limed, and reaction is very strongly acid or strongly acid in the subsoil. Permeability is moderate. Available water capacity is medium. Runoff is slow, and erosion is a slight hazard. Flooding is most likely during winter and early in spring, but it is possible from heavy rainfall throughout the year.

Included in mapping are small areas of Kirkville and Bibb soils on flood plains. Also, included are poorly drained loamy soils in old channels and sloughs. These included soils make up about 20 to 25 percent of this mapped area.

Most of the acreage is used as woodland, although some is used for pasture. This soil is poorly suited to row crops because of frequent flooding. This soil is suited to pasture. Flooding is the main limitation. Pasture management includes proper stocking, controlled grazing, and weed and brush control. Sufficient plant cover should be left on the ground in the fall to prevent scouring during floods.

This soil is well suited to loblolly pine, sweetgum, water oak, white oak, southern red oak, and American sycamore. Flooding severely limits harvesting the tree crop. This can be partly overcome by logging in dry weather.

Flooding and wetness are severe limitations of this soil for urban uses and for septic tank absorption fields.

This Jena soil is in capability subclass Vw and in woodland suitability group 1w9.

Ju—Jena-Urban land complex, frequently flooded. This complex consists of deep, well drained, nearly level Jena soil and Urban land in areas that are so intermingled that mapping them separately was not practical. This map unit is on the flood plain of Sowashee Creek. Slopes range from 0 to 2 percent.

The Jena soil makes up about 35 percent of this unit. It is subject to flooding almost every year for periods lasting for a few hours to as much as several days late in winter and spring during heavy rainfall. Typically, the surface layer is dark grayish brown fine sandy loam about 5 inches thick. The upper part of the subsoil, to a depth of about 15 inches, is brown fine sandy loam. The lower part, to about 42 inches, is yellowish brown fine sandy loam. The underlying material to a depth of 60 inches or more is yellowish brown loamy fine sand.

Reaction of the Jena soil ranges from very strongly acid to medium acid in the surface layer and is very strongly acid or strongly acid in the subsoil. Permeability is moderate. Available water capacity is medium. Runoff is slow, and erosion is a slight hazard.

Urban land makes up about 25 percent of this map unit. It consists of areas that are covered by houses, roads, parking lots, and other urban structures. Urban land, before it was built on or paved, had fill material added to varying depths. In places, if not enough fill material was added, Urban land is flooded. In some places where there is no fill material, the natural soil layers have been disturbed and mixed to a depth of several feet during the installation of underground utility lines.

Included in mapping are small areas of moderately well drained Kirkville soils on the flood plain and well drained Cahaba and somewhat poorly drained Quitman soils on terraces. Also, there are small areas of Urban land that have had enough fill added and are no longer subject to flooding.

Jena soil has severe limitations for most urban uses because of frequent flooding. The use of fill material to elevate areas for urban uses should be avoided because the fill narrows the flood plain or the area available for the runoff of floodwater. This results in deeper floodwater spread over a wider area downstream.

This map unit is not assigned a capability or a woodland suitability rating.

Ka—Kirkville fine sandy loam, occasionally flooded. This is a deep, moderately well drained, nearly level soil on narrow flood plains. This soil is flooded less often than once in 2 years. Slopes are 0 to 2 percent.

Typically, the surface layer is dark grayish brown fine sandy loam about 4 inches thick. The upper part of the subsoil, to a depth of about 13 inches, is yellowish brown fine sandy loam. To a depth of about 25 inches, it is yellowish brown loam mottled in shades of brown and gray. To a depth of about 50 inches, it is fine sandy loam mottled in shades of yellow, brown, and gray. The lower part to a depth of 65 inches or more is loam mottled in shades of yellow, gray, and brown.

This soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate, and the water table fluctuates between depths of 1 1/2 and 2 1/2 feet below the surface late in winter and early in spring. Available water capacity is medium. Runoff is slow, and erosion is a slight hazard. In spring, these soils do not dry out quite as soon as the well drained soils on the adjacent uplands. Early seedbed preparation and tillage are often delayed because of wetness.

Included in mapping are small areas of soils that are flooded several times each year, small areas of Jena and Quitman soils on slightly higher positions, and small areas of Bibb soils on lower positions. These included soils make up about 20 percent of this map unit.

Most of the acreage is used as woodland and pasture; in some places small fields are used for row crops. This soil is well suited to row crops and pasture. Surface field ditches, row arrangement, and returning crop

residue to the soil are needed. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is well suited to loblolly pine, sweetgum, yellow-poplar, cherrybark oak, and water oak. Wetness is a limitation in managing and harvesting. Logging operations should be performed at right angles to the stream channel to prevent skid trails from creating a new water course.

Flooding and wetness severely limit the soil for urban uses and for septic tank absorption fields.

This Kirkville soil is in capability subclass IIw and in woodland suitability group 1w8.

Kb—Kirkville-Bibb complex, frequently flooded. This map unit consists of small areas of nearly level Kirkville and Bibb soils that are so intermingled that mapping them separately was not practical. Kirkville soil is deep and moderately well drained; Bibb soil is deep and poorly drained. These soils are on narrow flood plains that are flooded more often than once in 2 years. Flooding is for short periods mostly in winter and spring. Areas range from 20 to 200 acres. Slopes range from 0 to 2 percent.

The Kirkville soil and a similar soil make up about 53 percent of this map unit. Typically, the surface layer is brown fine sandy loam about 5 inches thick. The subsurface layer, to a depth of about 9 inches, is grayish brown fine sandy loam that has pale brown mottles. The upper part of the subsoil, to about 19 inches, is yellowish brown loam mottled in shades of brown and gray. The lower part to 60 inches or more is loam mottled in shades of brown and gray.

Kirkville soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate, and the water table is at a depth from 1 1/2 to 2 1/2 feet in winter and early in spring. Available water capacity is medium. Runoff is slow, and erosion is a slight hazard.

The Bibb soil and a similar soil make up about 40 percent of this map unit. Typically, the surface layer, about 2 inches thick, is dark grayish brown fine sandy loam that has brown mottles. The layer below that, to a depth of about 7 inches, is grayish brown sandy loam that has yellowish brown mottles. The next layer, to a depth of about 30 inches, is gray sandy loam that has yellowish brown mottles. The underlying material to a depth of 65 inches or more is gray sandy loam mottled in shades of yellow and red.

Bibb soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate, and the water table fluctuates between depths of 1/2 foot and 1 1/2 feet below the surface in winter and early in spring. Available water capacity is medium. Runoff is slow, and erosion is a slight hazard.

Included in mapping are small areas of moderately well drained Annemaine and well drained Cahaba soils on low terraces. These soils make up about 7 percent of the map unit.

Most of the acreage is used for woodland or pasture. The soils are poorly suited to row crops because of flooding and wetness. These soils are suited to pasture. Pasture management includes proper stocking, controlled grazing, surface field ditches, and weed and brush control.

The soils of this map unit are well suited to loblolly pine, sweetgum, yellow-poplar, cherrybark oak, and water oak. Because of wetness, equipment use is limited, and seedling mortality is severe. Timber harvest should be in dry seasons. Logging operations should be at right angles to the stream to prevent deep skid trails that can create new water courses.

Wetness and flooding severely limit the use of these soils for urban uses and septic tank absorption fields.

These Kirkville and Bibb soils are in capability subclass Vw. Kirkville soil is in woodland suitability group 1w8; Bibb soil is in woodland suitability group 2w9.

KK—Kirkville-Bibb association, frequently flooded. This unit consists of deep, nearly level, moderately well drained Kirkville soils and poorly drained Bibb soils on flood plains bordering major streams. These soils are flooded for brief periods in winter and spring. They are in a regular and repeating pattern. Kirkville soils are on slightly higher positions adjacent to the stream channel; Bibb soils are on lower positions on the flood plain. Slopes range from 0 to 2 percent. Areas ranges from 160 to 1,000 acres.

The Kirkville soils and similar soils make up about 45 percent of the map unit. Typically, the surface layer is dark brown fine sandy loam about 8 inches thick. The upper part of the subsoil, to a depth of about 14 inches, is yellowish brown sandy loam. To a depth of about 19 inches, it is yellowish brown loam. To a depth of about 26 inches, it is yellowish brown loam mottled in shades of gray and brown. The lower part of the subsoil to a depth of 60 inches or more is sandy loam mottled in shades of gray, brown, and yellow.

Kirkville soils are low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate, and the water table fluctuates between depths of 1 1/2 and 2 1/2 feet below the surface in winter and early in spring. Available water capacity is medium. Runoff is slow, and erosion is a slight hazard.

Bibb soils and similar soils make up about 40 percent of the map unit. Typically, the surface layer is dark brown fine sandy loam about 6 inches thick. Below this, to a depth of about 25 inches, is gray fine sandy loam that has brown mottles. The underlying material to a depth of 60 inches or more is gray loam that has brown mottles.

Bibb soils are low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate, and the water table fluctuates between depths of 1/2 foot and 1 1/2 feet in winter and early in spring. Available water capacity is medium. Runoff is slow, and erosion is a slight hazard.

These soils make up about 15 percent of the map unit. Included in mapping are small areas of somewhat poorly drained Quitman soils on slightly higher elevations, poorly drained Daleville soils, and sandy and loamy soils in and along sloughs and abandoned channels.

These Kirkville and Bibb soils are used as woodland. They are poorly suited to row crops because of frequent flooding and wetness. These soils are suited to pasture.

These soils are well suited to loblolly pine, sweetgum, yellow-poplar, cherrybark oak, and water oak. Wetness and flooding, which limit the use of equipment, also cause a high rate of seedling mortality. Timber harvest should be during the drier seasons. Skid trails should be at right angles to the stream to avoid creating new water courses.

Flooding and wetness severely limit the use of this soil for septic tank absorption fields and for urban uses.

These Kirkville and Bibb soils are in capability subclass Vw; Kirkville soils are in woodland suitability group 1w8; Bibb soils are in woodland suitability group 2w9.

LaB—Lakeland sand, 0 to 5 percent slopes. This is a deep, excessively drained, nearly level to gently sloping soil on ridgetops on uplands.

Typically, the surface layer is dark brown sand about 2 inches thick and very dark grayish brown sand about 4 inches thick. Below that, to a depth of 75 inches or more the soil is sand that is strong brown and yellowish brown in the upper part and yellow in the lower part.

This soil is low in natural fertility. Reaction ranges from very strongly acid to medium acid throughout except where the surface layer has been limed. Permeability is very rapid. Runoff is slow. The erosion is a slight hazard. This soil is droughty because the available water capacity is low.

Included in mapping are small areas of Eustis and Lucy soils. They make up about 10 to 15 percent of the map unit.

Most of the acreage is used as woodland. In some areas sand has been excavated for commercial use. This soil is poorly suited to row crops and pasture because of droughtiness.

This soil is poorly suited to loblolly and longleaf pines because of the low available water capacity of the droughty sandy material. However, if trees are planted, scalping on the contour increases survival. Seedling mortality is moderate, and equipment use limitation is also moderate.

This soil is well suited to most urban uses. Although septic tank absorption fields function well on this soil, very rapid permeability may result in poor filtering action for onsite sewage disposal systems. The sandy texture and droughtiness are limitations to establishing ornamental plants and turf grasses.

This Lakeland soil is in capability subclass IVs and in woodland suitability group 4s3.

LH—Lucy-Heidel association, rolling. This unit consists of deep, well drained Lucy and Heidel soils. The landscape is mainly gently rolling ridgetops, steep side slopes, and narrow drainageways. These soils are in a regular and repeating pattern. The Lucy soils are on the ridgetops and upper side slopes. The Heidel soils are on the side slopes. Slopes are dominantly 5 to 20 percent; a few slopes range up to 30 percent. Areas range from 160 to 1,500 acres.

The Lucy soils and similar soils make up about 50 percent of the map unit. Typically, the surface layer is brown loamy sand about 2 inches thick. The subsurface layer, to a depth of about 12 inches, is yellowish brown loamy sand. The next layer, to about 31 inches, is brownish yellow loamy sand. The upper part of the subsoil, to about 43 inches, is red loam. The lower part of the subsoil to a depth of 65 inches or more is red sandy loam.

Lucy soils are low in natural fertility. Reaction is very strongly acid or strongly acid throughout. Permeability is rapid in the surface layer and moderate in the subsoil. The available water capacity is medium. Runoff is slow to moderate, and erosion is a slight hazard.

The Heidel soils and similar soils make up about 40 percent of the map unit. Typically, the surface layer is dark brown loamy sand about 6 inches thick. The upper part of the subsoil, to a depth of about 15 inches, is yellowish red sandy loam. The middle part, to a depth of about 70 inches, is red sandy loam. The lower part is red fine sandy loam to a depth of 80 inches.

Heidel soils are low in natural fertility. Reaction is very strongly acid or strongly acid throughout. Permeability is moderate. Available water capacity is medium. Runoff is rapid, and erosion is a severe hazard.

Included in mapping are excessively drained Lakeland soils on side slopes, Lucy and Heidel soils that have slope of 2 to 5 percent, and moderately well drained Kirkville soils in narrow drainageways. These soils make up about 10 percent of the association.

Most of the acreage is used as woodland. The soils are poorly suited to row crops and pasture grasses because of steepness of slopes and a high erosion hazard.

These soils are suited to loblolly, longleaf, and shortleaf pine. Some woodland management operations are limited by steepness of slopes. Log and skid roads should run with the contour of slopes to help prevent formation of gullies. Following harvest, water bars are needed across roads on hillsides to prevent gullies.

The soils in this map unit are mostly on ridgetops and have slope of 5 to 12 percent. These soils on ridgetops

are suited to urban uses such as dwelling sites and roads. Some soils in this map unit are poorly suited because of steepness of slope. The soils on ridgetops are slightly to moderately limited for use as septic tank absorption fields and the soils on the side slopes are severely limited because of slope.

Lucy soils are in capability subclass VIs; Heidel soils are in capability subclass VIIe; Lucy soils are in woodland suitability group 3s2; Heidel soils are in woodland suitability group 3o1.

LS—Lucy-Smithdale association, hilly. This unit consists of deep, well drained Lucy and Smithdale soils on uplands. The soils are in a regular and repeating pattern. The Lucy soils are on gently rolling ridgetops and upper side slopes. The Smithdale soils are on the side slopes. Slopes range from 8 to 30 percent. Areas range from 160 to 1,200 acres.

The Lucy soils and similar soils make up about 50 percent of the map unit. Typically, the surface layer is dark brown loamy sand about 4 inches thick. The upper part of the subsurface layer, to a depth of about 12 inches, is yellowish brown loamy sand. The lower part, to about 25 inches, is brown loamy sand. The upper part of the subsoil, to about 29 inches, is yellowish red sandy loam. The lower part of the subsoil to a depth of 65 inches or more is red loam.

Lucy soils are low in natural fertility. Reaction is very strongly acid or strongly acid throughout. Permeability is rapid in the surface layer and moderate in the subsoil. Available water capacity is medium. Runoff is slow to moderate, and erosion is a slight hazard.

The Smithdale soils and similar soils make up about 45 percent of the map unit. Typically, the surface layer is dark brown fine sandy loam about 7 inches thick. The subsurface layer, to a depth of about 10 inches, is yellowish brown fine sandy loam. The upper part of the subsoil, to about 37 inches, is red clay loam. To about 54 inches, it is red loam. The lower part to a depth of 75 inches or more is red sandy loam that has pockets of uncoated sand grains.

Smithdale soils are low in natural fertility. They are very strongly acid or strongly acid throughout. Permeability is moderate. Available water capacity is medium. Runoff is rapid, and erosion is a severe hazard.

These soils make up about 5 percent of the map unit. Of minor extent are mostly small areas of Sweatman soils on side slopes.

Most of the acreage of these soils is used as woodland. These soils are poorly suited to row crops and pasture grasses because of steepness of slopes and the severe hazard of erosion.

The soils of this unit are suited to loblolly, longleaf, and shortleaf pine. Limitations to woodland management are moderate on steep slopes because of the erosion hazard. Log and skid roads located on steep slopes may form gullies. When harvesting is completed, water bars are needed on all sloping roads to prevent erosion and formation of gullies. Roads should be seeded to grass to prevent erosion.

The soils of this association are poorly suited to most urban uses because of the steepness of slopes. Gently rolling ridgetops with less than 15 percent slope gradients are suited to dwelling sites and roads. Slope is a moderate limitation for septic tank absorption fields on ridgetops and a severe limitation on side slopes.

Lucy soils are in capability subclass VIs; Smithdale soils are in subclass VIIe; Lucy soils are in woodland suitability group 3s2; Smithdale soils are in woodland suitability group 3o1.

MaB—McLaurin loamy sand, 2 to 5 percent slopes. This is a deep, well drained, gently sloping soil on ridgetops of the uplands.

Typically, the surface layer is brown loamy sand about 6 inches thick. The upper part of the subsoil, to a depth of about 14 inches, is yellowish red sandy loam. To a depth of about 38 inches the subsoil is red loam, and to about 44 inches it is yellowish red sandy loam. The lower part of the subsoil to a depth of about 65 inches or more is yellowish red sandy loam that has brownish mottles and pockets of uncoated sand grains.

This soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate. Available water capacity is medium. Runoff is slow to moderate, and erosion is a slight hazard.

Included with this soil in mapping are small areas of Ruston, Eustis, and Lucy soils. The included soils make up about 10 to 15 percent of the map unit.

Most of the acreage is used for pasture or row crops; some areas are used as woodland. This soil is well suited to row crops and pasture grasses. Returning crop residue to the soil, minimum tillage, crop rotation, contour farming, terracing, and vegetative waterways are needed. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is suited to loblolly and shortleaf pine. Limitations to woodland management are slight.

This soil is well suited to most urban uses. The limitation of this soil for septic tank absorpton fields is slight.

This McLaurin soil is in capability subclass IIe and in woodland suitability group 3o1.

MaC—McLaurin loamy sand, 5 to 8 percent slopes. This is a deep, well drained, moderately sloping soil on ridgetops of the uplands.

Typically, the surface layer is dark grayish brown loamy sand about 3 inches thick. The subsurface layer, to a depth of about 8 inches, is yellowish brown loamy sand. The next layer, to about 14 inches, is light yellowish brown loamy sand. The upper part of the subsoil, to about 32 inches, is red sandy loam. The next layer, to about 45 inches, is yellowish red sandy loam

that has pockets of uncoated sand grains. The next layer, to about 60 inches, is yellowish red loamy sand that has light yellowish brown mottles and pockets of uncoated sand grains. The lower part of the subsoil to a depth of 70 inches or more is yellowish red sandy loam.

This soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate. Available water capacity is medium. Runoff is moderate, and erosion is a moderate hazard.

Included in mapping are small areas of Ruston, Eustis, and Lucy soils. The included soils make up about 10 to 15 percent of this map unit.

Most of the acreage is used as woodland, although some areas are used for pasture and row crops. This soil is suited to row crops. Returning crop residue to the soil, minimum tillage, crop rotation, contour farming, terraces, and vegetative waterways are needed.

This soil is well suited to pasture grasses. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is suited to loblolly and shortleaf pine. Limitations to woodland management are slight.

This soil is well suited to most urban uses. The limitation of this soil for septic tank absorption fields is slight.

This McLaurin soil is in capability subclass IIIe and in woodland suitability group 3o1.

OrB—Ora fine sandy loam, 2 to 5 percent slopes. This is a deep, moderately well drained, gently sloping soil that has a fragipan. This soil is on ridgetops of the uplands.

Typically, the surface layer is brown fine sandy loam about 6 inches thick. The upper part of the subsoil, to a depth of about 23 inches, is yellowish red loam. The lower part, to 65 inches, or more, is a fragipan of sandy loam in the upper part and sandy clay loam in the lower part. The pan is mottled in shades of red, brown, and gray.

This soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. During wet seasons, a water table fluctuates between depths of 2 and 3 1/2 feet or is perched above the fragipan. Available water capacity is medium. Runoff is medium, and erosion is a slight to moderate hazard. Plant roots and the movement of air and water through the soil are restricted by the fragipan. Seedbed preparation and tillage may be delayed early in spring because of seasonal wetness.

Included in mapping are small areas of soil that have slopes of more than 5 percent and some small areas of Savannah soils. These included soils make up about 10 to 15 percent of this map unit.

Most of the acreage is used for pasture or row crops; some areas are in woodland. This soil is well suited to row crops and pasture grasses and legumes. Returning crop residue to the soil, minimum tillage, crop rotation, contour farming, terracing, and grassed waterways are needed. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is suited to loblolly pine, shortleaf pine, and sweetgum. Limitations to woodland management are slight.

This soil is suited to most urban uses, but a seasonal high water table is a limitation. The use of this soil for septic tank absorption fields is severely limited because of the moderately slow permeability of the fragipan. But this limitation can be partly overcome by lengthening the field lines.

This Ora soil is in capability subclass IIe and in woodland suitability group 3o7.

OrC—Ora fine sandy loam, 5 to 8 percent slopes. This is a deep, moderately well drained, moderately sloping soil that has a fragipan. This soil is on ridgetops of the uplands.

Typically, the surface layer is yellowish brown fine sandy loam about 5 inches thick. The upper part of the subsoil, to a depth of about 21 inches, is yellowish red loam. The lower part to 65 inches is a fragipan of sandy loam mottled in shades of red, yellow, brown, and gray.

The soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. During wet seasons, a water table fluctuates between depths of 2 and 3 1/2 feet below the surface or is perched above the fragipan. Available water capacity is medium. Runoff is medium, and erosion is a moderate hazard. Plant roots and the movement of air and water through the soil are restricted by the fragipan. Early seedbed preparation and tillage may be a slight problem because of seasonal wetness.

Included in mapping are soils that have slopes of more than 8 percent and some small areas of Sweatman soils on side slopes. Included soils make up about 10 to 15 percent of this map unit.

Most of the acreage is used for pasture or row crops, although some areas are used as woodland. This soil is suited to row crops. Crop rotation, minimum tillage, terracing, contour farming, return of crop residue to the soil, and grassed waterways are needed.

This soil is well suited for pasture grasses and legumes. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is suited to loblolly pine, shortleaf pine, and sweetgum. Limitations to woodland management are slight.

This soil is suited to most urban uses, but it has limitations of a seasonal high water table and slope. The use of the soil for septic tank absorption fields is severely limited because of wetness and moderately slow permeability of the fragipan. The permeability

limitation can be partly overcome by lengthening the field lines.

This Ora soil is in capability subclass IIIe and in woodland suitability group 3o7.

OuD—Ora-Urban land complex, 5 to 12 percent slopes. This complex consists of deep, moderately well drained, moderately sloping to strongly sloping Ora soil and Urban land in areas that are so intermingled that mapping them separately was not practical. Areas range from 40 to 300 acres.

The Ora soil makes up about 50 percent of this map unit. Typically, the surface layer is very dark grayish brown fine sandy loam about 3 inches thick. The subsurface layer, to a depth of about 9 inches, is yellowish brown fine sandy loam. The upper part of the subsoil, to about 16 inches, is yellowish red clay loam. The next layer, to 22 inches, is yellowish red loam that has yellowish and brownish mottles. The lower part of the subsoil to a depth of 60 inches or more is a fragipan. The upper part of the fragipan, to 42 inches, is loam mottled in shades of brown, yellow, gray, and red and the lower part is sandy clay loam mottled in shades of brown, gray, and red.

Reaction in the Ora soil is very strongly acid or strongly acid throughout, except where the surface layer has been limed. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. During wet seasons, a water table fluctuates between depths of 2 and 3 1/2 feet or is perched above the fragipan. The available water capacity is medium. Runoff is medium, and erosion is a moderate hazard.

The Ora soil is well suited to lawn grasses and ornamental plants. It is also well suited to native trees, including loblolly pine, shortleaf pine, white oak, southern red oak, cherrybark oak, redcedar, pecan, and sweetgum. This soil is well suited to vegetable plants.

Ora soil has moderate to severe limitations for most urban uses. Steepness of slope and low strength for local streets and roads are limitations. The fragipan in the lower part of the subsoil is a severe limitation for septic tank absorption fields. This may be partly overcome by lengthening the field lines. Community sanitary facilities should be used, if available.

Urban land makes up about 35 percent of this map unit. Urban land consists of undisturbed soils and reworked soil material in areas that are covered by houses, streets, light industry, commercial buildings, and parking lots.

Included in mapping and making up about 15 percent of the unit are small areas of well drained Sweatman soils and moderately well drained Savannah soils. Also there are a few areas of soils that have slopes more than 12 percent.

The soils in this map unit are not assigned to a capability subclass or to a woodland suitability group.

Pa—Pits. These miscellaneous areas consist of sand pits, borrow pits, and clay pits. Areas range from 1 to 30 acres.

Sand pits are excavated areas from which sand has been mined. The larger ones are located southeast of Meridian near Mississippi Highway 19. Borrow pits are those from which soil and underlying material have been removed for use in construction of roads or as fill material. Clay pits are those from which clay has been removed for use in manufacture of ceramic tile and other products.

Pits require major reclamation before they can be used for crops or pasture. Pine trees will protect against erosion, but they grow slowly because the soil material is low in fertility and is droughty.

Pits are not assigned to a capability subclass or to a woodland suitability group.

PtA—Prentiss fine sandy loam, 0 to 2 percent slopes. This is a deep, moderately well drained, nearly level soil that has a fragipan. This soil is on stream terraces.

Typically, the surface layer is brown fine sandy loam about 6 inches thick. The upper part of the subsoil, to a depth of about 10 inches, is yellowish brown sandy loam. To a depth of about 17 inches, it is yellowish brown loam. To a depth of about 27 inches, it is yellowish brown loam mottled in shades of yellow and brown. The lower part of the subsoil, to a depth of 60 inches or more, is a fragipan. The upper part of the fragipan is loam mottled in shades of yellow, brown, and gray; and below about 40 inches, it is sandy clay loam mottled in shades of yellow, gray, red, and brown.

The soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. A perched water table fluctuates between depths of 2 and 2 1/2 feet below the surface during wet seasons. Available water capacity is medium. Runoff is medium, and erosion is a slight hazard. Plant roots and the movement of air and water through the soil are restricted by the dense and compact fragipan. Seedbed preparation and tillage may be delayed because of seasonal wetness.

Included in mapping are small areas of Quitman soils on terraces. The included soils make up about 10 to 15 percent of this map unit.

Most of the acreage is used for pasture or row crops, although some areas are used as woodland. The soil is well suited to row crops and pasture grasses and legumes. Returning crop residue to the soil, minimum tillage, crop rotation, arranging rows for drainage, and surface field ditches are needed. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is well suited to loblolly pine (fig. 3), sweetgum, cherrybark oak, and white oak. Wetness

Figure 3.—A 17-year-old loblolly pine forest that has been thinned by cutting every fifth row plus a few additional trees. This commercial forest is on Prentiss fine sandy loam, 0 to 2 percent slopes.

limits the use of harvesting equipment during wet periods.

This Prentiss soil is moderately to severely limited for most urban uses. Wetness and low strength for local roads and streets are limitations. The moderately slow permeability in the lower part of the subsoil or fragipan is a severe limitation for use of the soil for septic tank absorption fields.

This Prentiss soil is in capability subclass IIw and in woodland suitability group 2o7.

PuA—Prentiss-Urban land complex, 0 to 2 percent slopes. This complex consists of deep, moderately well drained, nearly level Prentiss soil and Urban Land in areas that are so intermingled that mapping them separately was not practical. Areas of this map unit range from 75 to 350 acres.

The Prentiss soil makes up about 45 percent of the map unit. Typically, the surface layer is grayish brown fine sandy loam about 3 inches thick. The subsurface layer, to a depth of about 7 inches, is dark brown fine sandy loam. The upper part of the subsoil, to about 14 inches, is light yellowish brown fine sandy loam. The next layer, to a depth of about 22 inches, is yellowish brown fine sandy loam. The lower part of the subsoil to a depth of 60 inches or more is a fragipan of sandy loam. The upper part of the fragipan is yellowish brown mottled in shades of gray and brown, and the lower part, below about 32 inches, is mottled in shades of yellow, gray, and brown.

Reaction of the Prentiss soil is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate in the upper part and moderately slow in the fragipan. A perched water table above the fragipan fluctuates between depths of 2 and 2 1/2 feet below the surface during wet seasons. Available water capacity is medium. Runoff is medium, and erosion is a slight hazard.

The Prentiss soil is well suited to lawn grasses, shrubs, and ornamental trees. It also is well suited to loblolly pine, shortleaf pine, white oak, southern red oak, cherrybark oak, redcedar, pecan, and sweetgum. This soil is well suited to vegetable gardens.

Urban land makes up about 35 percent of this map unit. Urban land consists of undisturbed soil and reworked soil material in areas covered by houses, streets, commercial buildings, schools, parks and recreational areas, and parking lots.

Included in mapping and making up about 20 percent of this unit are small areas of Quitman soils on terraces and moderately well drained Kirkville and well drained Jena soils on flood plains. Also included are some small areas of soils that are subject to flooding less often than once in 2 years.

Prentiss soil is moderately to severely limited for most urban uses. Wetness and low strength for local roads and streets are limitations. The moderately slow permeability in the lower part of the subsoil or fragipan is a severe limitation for use of the soil for septic tank absorption fields. Community sanitary facilities should be used.

This map unit is not assigned to a capability subclass or to a woodland suitability group.

QaA—Quitman loam, 0 to 2 percent slopes. This is a deep, somewhat poorly drained, nearly level soil on stream terraces.

Typically, the surface layer is dark grayish brown loam about 8 inches thick. The upper part of the subsoil, to a depth of about 18 inches, is light olive brown loam mottled in shades of brown and gray. A slightly compact and brittle layer extends to a depth of 65 inches or more. The upper part of this layer is clay loam mottled in shades of gray and brown, and below about 40 inches, it is sandy clay loam mottled in shades of gray and brown.

This soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderately slow. A perched water table fluctuates

between depths of 1 1/2 and 2 feet below the surface in the winter and early in spring. Available water capacity is medium. Runoff is slow, and erosion is a slight hazard. Water movement through the soil is restricted by the slightly compact and brittle layer in the subsoil. Seedbed preparation and tillage may be delayed because of seasonal wetness.

Included with this soil in mapping are small areas of Prentiss and Daleville soils on stream terraces. In some lower lying areas, soils that are are subject to flooding are included. The included soils make up about 10 to 15 percent of this map unit.

Most of the acreage is used for pasture or row crops; some areas are used as woodland. This soil is well suited to row crops and pasture grasses and legumes (fig. 4). Surface field ditches, returning crop residue to the surface, and minimum tillage are needed. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is well suited to loblolly pine, sweetgum, water oak, American sycamore, and yellow-poplar. Wetness limits the use of harvesting equipment late in winter and early in spring.

This soil is poorly suited to most urban uses because of the shallow depth to the seasonal high water table. The high water table and the moderately slow permeability in the subsoil are severe limitations for use of this soil as septic tank absorption fields.

This Quitman soil is in capability subclass IIw and in woodland suitability group 2w8.

RuB—Ruston fine sandy loam, 2 to 5 percent slopes. This is a deep, well drained, gently sloping soil on ridgetops of the uplands.

Typically, the surface layer is yellowish brown fine sandy loam about 7 inches thick. The upper part of the subsoil, to a depth of about 18 inches, is yellowish red sandy clay loam. To a depth of about 40 inches, it is red loam. To a depth of about 60 inches, it is red sandy loam that has light brown mottles. The lower part of the subsoil to a depth of 80 inches or more is red sandy clay loam.

This soil is low in natural fertility. Reaction ranges from very strongly acid to slightly acid in the surface layer, except where limed, and from very strongly acid to medium acid in the subsoil. Permeability is moderate. Available water capacity is medium to high. Runoff is medium, and erosion is a slight hazard.

Included in mapping are small areas of McLaurin and Ora soils on uplands and also areas of soils where the slopes are more than 5 percent. The included soils make up about 10 to 15 percent of this map unit.

Most of the acreage is used for pasture, row crops, and orchards although some areas are used as woodland. This soil is well suited to row crops, pasture grasses, and legumes. Returning crop residue to the soil, minimum tillage, crop rotation, contour farming, terracing,

Figure 4.—Bahiagrass baled for hay on Quitman loam, 0 to 2 percent slopes.

and vegetative waterways are needed. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is well suited to peach orchards and vineyards. Planting on the contour and providing winter cover crops help to control erosion.

This soil is suited to loblolly and shortleaf pine. Limitations to woodland management are slight.

This soil is well suited to most urban uses. This soil has slight limitations for use as septic tank absorption fields.

This Ruston soil is in capability subclass IIe and in woodland suitability group 3o1.

RuC—Ruston fine sandy loam, 5 to 8 percent slopes. This is a deep, well drained, moderately sloping soil on ridgetops of the uplands.

Typically, the surface layer is dark brown fine sandy loam about 5 inches. The upper part of the subsoil, to a depth of about 13 inches, is yellowish red loam that is underlain by red sandy clay loam to about 34 inches. The next layer, to about 50 inches, is red sandy loam that has light yellowish brown mottles. The lower part of the subsoil to a depth of 70 inches or more is red sandy clay loam.

This soil is low in natural fertility. Reaction ranges from very strongly acid to slightly acid in the surface layer, except where limed, and from strongly acid to medium acid in the subsoil. Permeability is moderate. Available water capacity is medium to high. Runoff is rapid, and erosion is a moderate hazard.

Included in mapping are small areas of McLaurin and Ora soils on uplands and areas where the slopes are more than 8 percent. These included soils make up about 10 to 15 percent of the map unit.

Most of the acreage is in woodland. A small acreage is used for pasture and row crops. This soil is suited to row crops. Returning crop residue to the soil, minimum tillage, crop rotation, contour farming, terracing, and vegetative waterways are needed. This soil is well suited to commonly grown pasture grasses and legumes. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is suited to loblolly and shortleaf pine. Limitations to woodland management are slight.

This soil is well suited to most urban uses. Slope is a limitation for small commercial buildings and industrial sites. Limitations for the use of this soil for septic tank absorption fields are slight.

This Ruston soil is in capability subclass IIIe and in woodland suitability group 3o1.

SaA—Savannah fine sandy loam, 0 to 2 percent slopes. This is a deep, moderately well drained, nearly level soil that has a fragipan. This soil is on ridgetops of the uplands.

Typically, the surface layer is dark grayish brown fine sandy loam about 5 inches thick. The subsurface layer, to a depth of about 10 inches, is yellowish brown fine sandy loam. The upper part of the subsoil, to about 26 inches, is yellowish brown loam. In the lower part, a fragipan extends to a depth of 50 inches or more. It is loam mottled in shades of brown and gray.

This soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. A perched water table above the fragipan fluctuates between depths of 1 1/2 and 3 feet below the surface late in winter and early in spring. Available water capacity is medium. Runoff is slow, and erosion is a slight hazard. Plant roots and the movement of air and water through the soil are restricted by the fragipan. Seedbed preparation and tillage can be delayed because of seasonal wetness.

Included with this soil in mapping are small areas of soils that have slopes more than 2 percent and more poorly drained soils in depressional areas and at the heads of drainageways. The included soils make up about 10 to 15 percent of this map unit.

Most of the acreage is used for pasture or row crops; some areas are used as woodland. This soil is well suited to row crops and pasture grasses and legumes. Returning crop residue to the soil, minimum tillage, crop rotation, and surface field ditches are needed. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is suited to loblolly pine, shortleaf pine, southern red oak, and post oak. Limitations to woodland management are slight, except for plant competition, which is moderate.

This soil is suited to most urban uses, but the seasonal high water table is a limitation. Moderately slow permeability in the fragipan and seasonal wetness are severe limitations for use of this soil for septic tank absorption fields, but this may be partly overcome by lengthening the field lines.

This Savannah soil is in capability subclass IIw and in woodland suitability group 3o7.

SaB—Savannah fine sandy loam, 2 to 5 percent slopes. This is a deep, moderately well drained, gently sloping soil that has a fragipan. This soil is on ridgetops of the uplands.

Typically, the surface layer is brown fine sandy loam about 7 inches thick. The upper part of the subsoil, to a depth of about 18 inches, is yellowish brown loam. The next layer, to 25 inches, is yellowish brown loam that has brownish mottles. In the lower part of the subsoil, a fragipan extends to 65 inches or more. The upper part of the fragipan is yellowish brown loam mottled in shades of brown and gray, and below about 32 inches the fragipan is yellowish brown sandy clay loam mottled in shades of red, gray, and brown.

This soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where

the surface layer has been limed. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. A perched water table above the fragipan fluctuates between 1 1/2 and 3 feet below the surface late in winter and early in spring. Available water capacity is medium. Runoff is medium, and erosion is a slight to moderate hazard. Plant roots and the movement of air and water through the soil are restricted by the fragipan. Seedbed preparation and tillage are sometimes delayed in spring because of seasonal wetness.

Included in mapping are small areas of soils on uplands where the slope is more than 5 percent and some small areas of Ora soils. The included soils make up about 10 to 15 percent of the map unit.

Most of the acreage of this Savannah soil is used for pasture or row crops (fig. 5), although some areas are used as woodland. The soil is well suited to row crops and pasture grasses and legumes. Returning crop residue to the soil, minimum tillage, crop rotation, contour farming, terracing, and vegetative waterways are needed. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is suited to loblolly pine, shortleaf pine, southern red oak, and post oak. Limitations to woodland management are slight, except for windthrow hazard and plant competition, which are moderate.

This soil is suited to most urban uses, but a seasonal high water table is a limitation. Moderately slow permeability in the fragipan and seasonal wetness severely limit the use of this soil for septic tank absorption fields.

This Savannah soil is in capability subclass IIe and in woodland suitability group 3o7.

SaC—Savannah fine sandy loam, 5 to 8 percent slopes. This is a deep, moderately well drained, moderately sloping soil that has a fragipan. The soil is on ridgetops of the uplands.

Typically, the surface layer is brown fine sandy loam about 5 inches thick. The subsurface layer, to a depth of 8 inches, is pale brown fine sandy loam. The upper part of the subsoil, to about 16 inches, is strong brown loam. The next layer, to about 21 inches, is strong brown loam that has pale brown mottles. In the lower part of the subsoil, a fragipan extends to a depth of 60 inches or more. The upper part of the fragipan is loam mottled in shades of brown, red, and gray. Below about 38 inches, the fragipan is clay loam mottled in shades of brown, red, and gray.

This soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. A perched water table above the fragipan fluctuates between depths of 1 1/2 and 3 feet below the surface during winter and early in spring. Available water capacity is medium. Runoff is medium,

Figure 5.—Soybeans were planted on the contour on Savannah fine sandy loam, 2 to 5 percent slopes.

and erosion is a moderate hazard. Plant roots and the movement of air and water through the soil are restricted by the fragipan. Seedbed preparation and tillage may be a slight problem early in spring because of seasonal wetness.

Included with this soil in mapping are small areas of Ora soils and small areas of soils on uplands where slopes are more than 8 percent. The included soils make up about 10 to 15 percent of the map unit.

Most of the acreage is used for pasture or row crops, although some areas are used as woodland. This soil is suited to row crops. Crop rotation, minimum tillage, terracing, contour farming, returning crop residue to the soil, and vegetative waterways are needed.

This soil is well suited to pasture grasses and legumes. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is suited to loblolly pine, shortleaf pine, southern red oak, and post oak. Limitations to woodland management are slight, except for the windthrow hazard and the plant competition, which are moderate.

This soil is suited to urban uses but seasonal wetness and slopes are limitations. The moderately slow permeability in the fragipan and the seasonal wetness severely limit the use of this soil for septic tank absorption fields. The permeability limitation can be partly overcome by lengthening the field lines.

This Savannah soil is in capability subclass IIIe and in woodland suitability group 3o7.

SbB—Savannah-Urban land complex, 0 to 5 percent slopes. This complex consists of deep, moderately well drained, nearly level to gently sloping Savannah soil and Urban land in areas that are so intermingled that mapping them separately was not practical. The unit is on uplands. Areas range from 40 to 250 acres.

The Savannah soil makes up about 45 percent of the map unit. Typically, the surface layer is dark grayish brown fine sandy loam about 5 inches thick. The subsurface layer, to a depth of about 9 inches, is brown fine sandy loam. The upper part of the subsoil, to about 18 inches, is yellowish brown loam. The next layer, to about 28 inches, is yellowish brown loam that has strong brown mottles. In the lower part of the subsoil a fragipan extends to a depth of 60 inches or more. It is loam to a depth of 42 inches and clay loam below. The fragipan is mottled in shades of brown, gray, and red.

Reaction of the Savannah soil is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate in the upper part of the subsoil and moderately slow in the fragipan. A perched water table above the fragipan fluctuates between depths of 1 1/2 and 3 feet below the surface during winter and early in spring. Available water capacity is medium. Runoff is slow to medium, and erosion is a slight hazard.

Urban land makes up about 40 percent of this map unit. Urban land consists of undisturbed soils and altered or reworked soil material in areas that are mostly covered by houses, streets, industrial sites, commercial buildings, and parking lots.

Included in mapping are small areas of Quitman soils on terraces and Ora soils on uplands. Also included are small areas of soils that have slopes of more than 5 percent.

Savannah soil is well suited to lawn grasses, shrubs, and ornamental trees. It also is moderately suited to native trees, including loblolly pine, shortleaf pine, white oak, southern red oak, cherrybark oak, redcedar, pecan, and sweetgum. This soil is well suited to vegetable gardens.

Savannah soil is suited to most urban uses. Seasonal wetness, low strength as it affects local roads and streets, and slope are limitations. The moderately slow permeability of the fragipan severely limits the use of this soil for septic tank absorption fields. This can be partly overcome by lengthening the field lines. Community sanitary facilities are preferable.

This map unit is not assigned to a capability subclass or to a woodland suitability group.

ScD—Smithdale fine sandy loam, 8 to 15 percent slopes. This is a deep, well drained, strongly sloping soil on hillsides.

Typically, the surface layer is yellowish brown fine sandy loam about 4 inches thick. The subsurface layer, to a depth of about 9 inches, is light yellowish brown fine sandy loam. The upper part of the subsoil, to about 28 inches, is yellowish red sandy clay loam. The next layer, to 56 inches, is yellowish red loam that has brownish yellow mottles and pockets of uncoated sand grains. The lower part to a depth of 75 inches or more is red sandy loam that has brownish yellow mottles and pockets of uncoated sand grains.

This soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate. Available water capacity is medium. Runoff is rapid, and erosion is a severe hazard.

Included with this soil in mapping are small areas of Lucy and Sweatman soils on uplands. The included soils make up about 15 to 20 percent of this map unit.

All of the acreage is used for pasture or as woodland. This soil is suited to pasture grasses. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is suited to loblolly and shortleaf pines. Erosion is a problem on steep slopes. Water bars are needed on all roads to prevent erosion, and grass should be established on the soil following harvest of trees.

This soil is poorly suited to row crops. If the soil is cultivated, erosion is a severe hazard.

This soil is suited to most urban uses, but in places, steepness of slope is a limitation. This soil is moderately limited for use as septic tank absorption fields because of slope.

This Smithdale soil is in capability subclass VIe and in woodland suitability group 3o1.

SdE—Smithdale-Lucy complex, 15 to 25 percent slopes. This unit consists of small areas of steeply sloping Smithdale and Lucy soils that are so intermingled that mapping them separately was not practical. These soils are deep and well drained. Areas range from 10 to 50 acres.

The Smithdale soil and similar soils make up about 50 percent of the map unit. Typically, the surface layer is dark brown fine sandy loam about 4 inches thick. The upper part of the subsoil, to a depth of about 10 inches, is red sandy clay loam. The next layer, to about 34 inches, is red loam. The lower part of the subsoil to a depth of 70 inches or more is a red sandy loam that has pockets of uncoated sand grains.

Smithdale soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderate. Available water capacity is medium. Runoff is rapid, and erosion is a severe hazard.

The Lucy soil and similar soils make up about 45 percent of the map unit. Typically, the surface layer is dark brown loamy sand about 10 inches thick. The subsurface layer, to a depth of about 22 inches, is light yellowish brown loamy sand. The subsoil to a depth of 65 inches or more is yellowish red sandy loam.

Lucy soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is rapid in the surface layer and moderate in the subsoil. Available water capacity is medium. Runoff is slow to moderate, and erosion is a slight hazard.

Included in mapping are small areas of Sweatman soils on side slopes and soils that have slopes of less than 15 percent.

Most of the acreage is used for pasture or as woodland. The soils are poorly suited to row crops because of steepness of slopes, but they are moderately suited to pasture grasses and legumes. Pasture management includes proper stocking, controlled grazing, weed and brush control, and erosion control of washouts on animal paths on steep slopes.

These soils are suited to loblolly, longleaf, and shortleaf pine. Erosion along skid trails and haul roads is a problem. Seedling mortality is high on the Lucy soils because of droughtiness and low available moisture. Following any logging operation, use of water bars, fertilizer, and establishment of grass are needed to stabilize roads and trails, which may wash out and become gullies.

These soils are poorly suited to urban uses because of steepness of slopes. These soils are severely limited to use as septic tank absorption fields because of steepness of slopes.

Smithdale soils are in capability subclass VIIe, and Lucy soils are in capability subclass VIs. Smithdale soils are in woodland suitability group 3o1, and Lucy soils are in woodland suitability group 3s2.

SmB2—Sweatman fine sandy loam, 2 to 5 percent slopes, eroded. This is a well drained, gently sloping soil on ridgetops of the uplands.

Typically, the surface layer consists of dark grayish brown fine sandy loam about 2 inches thick and, below that, brown fine sandy loam about 3 inches thick. The upper part of the subsoil, to a depth of about 23 inches, is red clay. The lower part, to a depth of about 36 inches, is strong brown clay that has mottles in shades of red and yellow. The underlying material to a depth of 65 inches or more is stratified fine sandy loam, clay loam and weathered soft shale. It is mottled in shades of red, brown, and gray.

In most areas the present surface layer is a mixture of the original surface layer and material from the subsoil. Erosion has removed part of the original surface layer. In places, all of the original surface layer has been removed. Some areas have a few rills and shallow gullies.

This soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderately slow. Available water capacity is high. Runoff is medium, and erosion is a moderate hazard.

Included in mapping are small areas of Ora soils on uplands and small areas of soils that have slopes of more than 5 percent. The included soils make up about 10 to 15 percent of this map unit.

Most of the acreage is used for pasture or row crops, although some areas are used as woodland (fig. 6). This soil is suited to row crops and pasture grasses and legumes. Returning crop residue to the soil, minimum tillage, crop rotation, contour farming, terracing, and grassed waterways are needed. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is suited to woodland. Loblolly and shortleaf pines are among the most desirable trees. Poor trafficability in wet seasons is the main limitation.

This soil is suited to most urban uses, but a clayey texture and the shrinking and swelling of the soil with changes in moisture are limitations. Moderately slow permeability is a severe limitation for septic tank absorption fields.

This Sweatman soil is in capability subclass IIIe and in woodland suitability group 3c2.

SmC2—Sweatman fine sandy loam, 5 to 8 percent slopes, eroded. This is a well drained, moderately sloping soil on ridgetops of the uplands.

Figure 6.—Bermudagrass and bahiagrass protect roadbanks against erosion as well as beautify the landscape in this area of Sweatman fine sandy loam, 2 to 5 percent slopes, eroded.

Typically, the surface layer consists of grayish brown fine sandy loam about 2 inches thick and, below that, strong brown sandy loam about 3 inches thick. The upper part of the subsoil, to a depth of about 17 inches, is yellowish red clay. The next layer, to about 27 inches, is yellowish red clay that has brownish mottles. The lower part, to about 35 inches, is strong brown clay loam that has red and yellowish brown mottles. The underlying material to a depth of 65 inches or more is stratified soft weathered shale and loamy soil material mottled in shades of red, brown, and gray.

In most areas the present surface layer is a mixture of the original surface layer and material from the subsoil. In places, all of the original surface layer has been removed by erosion. Some areas are dissected by a few rills and shallow gullies.

This soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderately slow. Available water capacity is high. Runoff is medium to rapid, and erosion is a severe hazard.

Included with the soil in mapping are small areas of Ora soils on uplands and small areas of soils that have slopes of more than 8 percent. The included soils make up about 10 to 15 percent of the map unit.

Most of the acreage is used for pasture or as woodland. A few areas are used for row crops. This soil is suited to pasture grasses and legumes (fig. 7). This soil is poorly suited to row crops because of the severe erosion hazard. If cultivated crops are grown, returning crop residue to the soil, minimum tillage, crop rotation, contour farming, terracing, and grassed waterways are needed. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

This soil is suited to loblolly and shortleaf pine. Poor trafficability during wet periods is the main limitation to timber managment.

This soil is suited to most urban uses, but a clayey texture and the shrinking and swelling with changes in moisture are limitations. Moderately slow permeability in the subsoil is a severe limitation for septic tank absorption fields.

This Sweatman soil is in capability subclass IVe and in woodland suitability group 3c2.

SmD2—Sweatman fine sandy loam, 8 to 15 percent slopes, eroded. This is a well drained, strongly sloping soil on uplands.

Figure 7.—Cows and calves grazing ryegrass on Sweatman fine sandy loam, 5 to 8 percent slopes, eroded.

Typically, the surface layer is brown fine sandy loam about 4 inches thick. The upper part of the subsoil, to a depth of about 27 inches, is red clay. The lower part, to about 38 inches, is yellowish red loam that has brownish mottles. The underlying material to a depth of 60 inches or more is stratified weathered soft shale and loamy soil material mottled in shades of red, brown, and gray.

In most areas the present surface layer is a mixture of the original surface layer and material from the subsoil. In places, all of the original surface layer has eroded away. Some areas are dissected by a few rills and shallow gullies.

This soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderately slow. Available water capacity is high. Runoff is rapid, and the erosion is a severe hazard.

Included with this soil in mapping are small areas of Smithdale and Lucy soils on uplands and some areas of soils that have slopes of more than 15 percent. The included soils make up about 20 to 25 percent of this map unit.

All of the acreage is used for pasture or as woodland. This soil is suited to pasture grasses. Pasture management includes proper stocking, controlled grazing, and weed and brush control. Use of equipment is limited because of steepness of slopes.

This soil is suited to loblolly and shortleaf pine. Use of equipment is restricted during wet periods by low soil strength. When harvesting is completed, water bars are needed on all sloping roads to prevent gully erosion. Roads should be seeded to grass to prevent erosion.

This soil is suited to most urban uses, but a clayey texture, the shrinking and swelling of the soil with changes in moisture, and the steepness of slopes are limitations. The moderately slow permeability is a severe limitation for use of this soil for septic tank absorption fields.

This Sweatman soil is in capability subclass VIIe and in woodland suitability group 3c2.

SmE2—Sweatman fine sandy loam, 15 to 35 percent slopes, eroded. This is a well drained, steeply sloping soil on hillsides.

Typically, the surface layer is dark grayish brown fine sandy loam about 2 inches thick. The subsurface layer, to a depth of about 5 inches, is brown fine sandy loam. The upper part of the subsoil, to about 17 inches, is yellowish red clay. The lower part, to a depth of about 29 inches, is clay mottled in shades of brown. The underlying material to a depth of 60 inches is stratified weathered shale and loamy soil material mottled in shades of red, yellow, brown, and gray.

In most areas the present surface layer consists of a mixture of the original surface layer and material from the subsoil. In places all of the original surface layer has eroded away. Some areas are notched by rills and

shallow gullies, which extend into the shaly clay substratum.

This soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderately slow. Available water capacity is high. Runoff is rapid, and erosion is a severe hazard. The soft shale layer somewhat restricts plant roots and movement of water through the soil.

Included with this soil in mapping are small areas of Smithdale and Lucy soils on uplands. The included soils make up about 15 to 20 percent of this map unit.

Most of the acreage is in woodland, although some small areas are used for urban structures. This soil is suited to loblolly and shortleaf pine. Steepness of slopes is the main limitation in woodland managment. Rapid runoff greatly increases the hazard of erosion and gullying on skid trails and haul roads. When harvesting is completed, water bars are needed on all sloping roads to prevent gully erosion. Roads should be seeded to grass to prevent erosion.

This soil has severe limitations for urban uses because of steepness of slopes. The moderate shrink-swell potential is a limitation for some uses. Steepness of slopes and the moderately slow permeability are severe limitations for use of this soil for septic tank absorption fields.

This Sweatman soil is in capability subclass VIIe and in woodland suitability group 3c2.

SnE—Sweatman-Smithdale complex, 5 to 25 percent slopes. This unit consists of small areas of moderately sloping to steeply sloping Sweatman and Smithdale soils that are so intermingled that mapping them separately was not practical. These are well drained soils on hilly uplands. Areas range from 10 to 75 acres.

Sweatman fine sandy loam makes up about 50 percent of the unit. Typically, the surface layer is dark grayish brown fine sandy loam about 5 inches thick. The subsurface layer, to a depth of about 9 inches, is light yellowish brown fine sandy loam. The subsoil to a depth of about 37 inches is yellowish red clay. The underlying material to a depth of 65 inches is stratified soft weathered shale and loamy soil material mottled in shades of red, yellow, and gray.

Sweatman soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except where the surface layer has been limed. Permeability is moderately slow. Available water capacity is medium to high. Runoff is rapid, and erosion is a severe hazard.

Smithdale fine sandy loam and similar soils make up about 40 percent of the map unit. Typically, the surface layer is dark brown fine sandy loam about 3 inches thick. The subsurface layer, to a depth of about 6 inches, is yellowish brown fine sandy loam. The upper part of the subsoil, to about 10 inches, is yellowish red fine sandy loam. The next layer, to about 26 inches, is red sandy clay loam. The next layer, to about 38 inches, is red sandy clay loam that has yellowish mottles and pockets of uncoated sand grains. The lower part of the subsoil to a depth of 70 inches or more, is red sandy loam that has yellowish mottles and pockets of uncoated sand grains.

Smithdale soil is low in natural fertility. Reaction is very strongly acid or strongly acid throughout except in the surface layer in limed areas. Permeability is moderate. Available water capacity is medium. Runoff is rapid, and erosion is a severe hazard.

Included in mapping are small areas of Ora soils on the gently sloping ridgetops and Lucy soils on the side slopes.

Most of the acreage is used for pasture or as woodland. These soils are poorly suited to row crops because of the steepness of slopes. They are moderately suited to pasture grasses and legumes. Pasture management includes proper stocking, controlled grazing, and weed and brush control.

The soils of this map unit are suited to loblolly and shortleaf pine. Erosion and washouts on skid trails and haul roads are a problem on steeper slopes. When harvesting is complete, water bars are needed on all sloping roads and trails to prevent gully erosion. Roads should be seeded to grass to prevent erosion.

Most of these soils are poorly suited to urban uses because of steepness of slopes; however, there are gently and moderately sloping ridgetops that are suited to such uses as sites for dwellings and related structures. Soils on slopes of more than 15 percent are severely limited for use as septic tank absorption fields because of steepness. Smithdale soils on ridgetops are moderately limited because of moderate permeability, and the Sweatman soils are severely limited because of moderately slow permeability.

These Sweatman and Smithdale soils are in capability subclass VIIe; Sweatman soil is in woodland suitability group 3c2; Smithdale soil is in woodland suitability group 3o1.

SuD—Sweatman-Urban land complex, 5 to 15 percent slopes. This complex consists of well drained, moderately sloping to strongly sloping Sweatman soil and Urban land in areas that are so intermingled that mapping them separately was not practical. Areas of this map unit range from 20 to more than 200 acres.

The well drained Sweatman soil makes up about 45 percent of this map unit. Typically, the surface layer is brown fine sandy loam about 4 inches thick. The upper part of the subsoil, to a depth of about 2l inches, is red clay. The lower part, to about 33 inches, is yellowish red clay that has reddish and brownish mottles and has a few fragments of grayish shale. Between depths of 33 and 65 inches are stratified weathered shale and loam mottled in shades of red, yellow, and gray.

Reaction of the Sweatman soil is very strongly acid or strongly acid throughout. Permeability is moderately

slow. Available water capacity is high. Runoff is medium to rapid, and erosion is a severe hazard.

Included in mapping are small areas of Ora and Ruston soils on uplands and small areas of soils that have slopes of more than 15 percent.

The Sweatman soil is well suited to lawn grasses, shrubs, and ornamental trees. It is suited to loblolly pine, shortleaf pine, white oak, southern red oak, cherrybark oak, redcedar, pecan, and sweetgum. In areas where slopes are less than 8 percent, this soil is suited to vegetable gardens.

The Sweatman soil has moderate limitations for urban uses. The moderate shrink-swell and steepness of slopes are limitations, but they can be partly overcome by proper design and installation. The moderately slow permeability of the clay subsoil is a severe limitation for septic tank absorption fields.

Urban land makes up about 40 percent of the unit. It consists of mostly altered or reworked soil material in areas that are covered mostly by homes, streets, and public service areas that have paved parking lots.

This map unit is not assigned to a capability subclass or to a woodland suitability group.

SuE—Sweatman-Urban land complex, 15 to 25 percent slopes. This complex consists of steeply sloping Sweatman soil and Urban land in areas that are so intermingled that mapping them separately was not practical. The areas are on uplands. Areas range from 40 to 300 acres.

The well drained Sweatman soil makes up about 60 percent of this map unit. Typically, the surface layer is dark grayish brown fine sandy loam about 4 inches thick. The upper part of the subsoil, to a depth of about 22 inches, is red clay. The lower part, to about 37 inches, is strong brown loam that has reddish and yellowish mottles and few fragments of grayish shale. The underlying material to a depth of 60 inches or more is stratified weathered shale and loam mottled in shades of brown, gray, and red.

Reaction of the Sweatman soil is very strongly acid or strongly acid throughout. Permeability is moderately slow. Available water capacity is high. Runoff is rapid, and erosion is a severe hazard.

Included in mapping are small areas of Smithdale soils on uplands and small areas of soils that have more than 25 percent slope.

The Sweatman soil is well suited to lawn grasses, shrubs, and ornamental trees. It also is suited to native trees, including loblolly pine, shortleaf pine, white oak, southern red oak, cherrybark oak, redcedar, pecan, and sweetgum.

The Sweatman soil is poorly suited to most urban uses. The moderate shrink-swell potential and steep slopes are limitations, but they can be partly overcome by proper design and installation. Steepness of slopes and the slowly permeable clay subsoil are severe limitations for septic tank absorption fields.

Urban land makes up about 30 percent of the unit. It consists of mostly altered or reworked soil material in areas that are covered by houses, streets, and other urban structures.

This map unit is not assigned to a capability subclass or to a woodland suitability group.

SW—Sweatman association, hilly. This unit consists of well drained Sweatman soils on dissected uplands. The landscape is mainly narrow ridgetops, steep side slopes, and narrow winding drainageways. Slopes range from 5 to 35 percent. Areas range from 160 to more than 2,000 acres.

The well drained Sweatman soils and similar soils make up about 80 percent of the map unit. Typically, the surface layer is dark grayish brown fine sandy loam about 4 inches thick. The upper part of the subsoil, to a depth of about 9 inches, is yellowish red silty clay. The next layer, to about 23 inches, is red silty clay that has brownish mottles. The next layer, to about 31 inches, is red silty clay that has pale brown mottles and few fragments of grayish shale. The underlying material to a depth of 65 inches or more is stratified weathered shale and loamy material mottled in shades of red, brown, and gray.

Sweatman soils are low in natural fertility. Reaction is very strongly acid or strongly acid throughout. Permeability is moderately slow. Available water capacity is high. Runoff is moderate to rapid, and erosion is a severe hazard.

Included in mapping are areas of Ruston soils on gently rolling ridgetops, Smithdale and Lucy soils on side slopes, and Kirkville and Bibb soils in drainageways. Also included are small areas of soils that have slopes of more than 35 percent.

Most of the acreage is used as woodland. The Sweatman soils are poorly suited to row crops and pasture because of steepness of slopes and a severe erosion hazard.

The soils of this map unit are suited to loblolly and shortleaf pine. Erosion and washouts are problems on steeper slopes, but these conditions can be partly overcome by locating skid trails, log landings, and haul roads in less steep areas, and by harvesting in drier seasons. When harvesting is completed, water bars are needed on sloping roads to prevent gully erosion. Roads should be seeded to grass to prevent erosion.

Sweatman soils are poorly suited to most urban uses because of the steepness of slopes, clayey texture, and shrinking and swelling of the soil with changes in moisture. The moderately slow permeability of the soils is a severe limitation for septic tank absorption fields.

These Sweatman soils are in capability subclass VIIe and in woodland suitability group 3c2.

SX—Sweatman-Smithdale association, hilly. This unit consists of well drained Sweatman and Smithdale soils on gently rolling ridgetops, on side slopes, and in

narrow drainageways. These soils are in a regular and repeating pattern. Sweatman soils are on the lower ridgetops and side slopes. Smithdale soils are on the higher ridgetops and upper slopes. Slopes range from 5 to 35 percent. Areas range from 160 to more than 1,500 acres.

The Sweatman soils and similar soils make up about 45 percent of the map unit. Typically, the surface layer is grayish brown fine sandy loam about 3 inches thick. The subsurface layer, to a depth of about 6 inches, is brown fine sandy loam. The upper part of the subsoil, to about 18 inches, is yellowish red clay. The lower part, to a depth of about 35 inches, is yellowish red clay that has yellowish mottles. The underlying material to a depth of about 65 inches or more is stratified weathered shale and soil material mottled in shades of yellow, brown, red, and gray.

Sweatman soils are low in natural fertility. Reaction is very strongly acid or strongly acid throughout. Permeability is moderately slow. Available water capacity is high. Runoff is rapid, and erosion is a severe hazard.

The Smithdale soils and similar soils make up about 30 percent of the map unit. Typically, the surface layer is dark grayish brown fine sandy loam about 4 inches thick that is underlain by a yellowish brown fine sandy loam subsurface layer, to a depth of about 9 inches. The upper part of the subsoil, to a depth of about 18 inches, is yellowish red loam. To a depth of about 40 inches, it is red sandy clay loam. To a depth of about 54 inches, it is red sandy loam that has pale brown mottles and pockets of uncoated sand grains. The lower part of the subsoil to a depth of 65 inches or more is yellowish red sandy loam that has pale brown mottles and pockets of uncoated sand grains.

Smithdale soils are low in natural fertility. Reaction is very strongly acid or strongly acid throughout. Permeability is moderate. Runoff is rapid, and erosion is a severe hazard.

Included in mapping are Ora soils on ridgetops, Lucy soils on side slopes, Kirkville and Bibb soils in drainageways, and small areas of soils that have slopes of more than 35 percent.

These Sweatman and Smithdale soils are mostly used as woodland. They are poorly suited to row crops and pasture plants because of steepness of slopes and the severe erosion hazard.

The soils of this map unit are suited to loblolly and shortleaf pine. Because of steepness of slopes and rapid runoff, washouts and formation of gullies in skid trails and haul roads are hazards. These limitations can be partly overcome by harvesting in drier seasons and by locating skid trails, log landings, and haul roads properly and within limiting grades. When harvesting is completed, water bars are needed on all sloping roads to prevent gully erosion. Roads should be seeded to grass to prevent erosion.

These soils are poorly suited to most urban uses because of the steep side slopes of the rolling and hilly topography. Smithdale soils on ridgetops that have less than 15 percent slopes are suited to dwelling sites. Limitations of these soils for use as septic tank absorption fields are moderate because of moderate permeability and, also in places, because of slopes. On Sweatman soils limitations are severe for septic tank absorption fields because of moderately slow permeability. All of the steep Sweatman and Smithdale soils on side slopes have severe limitations for septic tank absorption fields because of the slope gradient.

These Sweatman and Smithdale soils are in capability subclass VIIe; Sweatman soils are in woodland suitability group 3c2; Smithdale soils are in woodland suitability group 3o1.

Ur—Urban land. This map unit consists of areas of reworked or altered soils in the city of Meridian and the Naval Air Station. About 90 percent of the surface area is covered by buildings, streets, railroad facilities, parking lots, military facilities, and runways.

Digging, mixing, and moving the soils for the purpose of building and installing structures have so altered the soils that they cannot be classified at the series level. Most of the Urban land is on uplands, where the unaltered soils are loamy and clayey. These soils are well drained and strongly acid or very strongly acid. On the uplands, runoff is medium to rapid and erosion is a moderate hazard.

Some Urban land is in areas of well drained to somewhat poorly drained terrace and bottom land soils, which are medium acid to very strongly acid. Runoff is slow to medium and erosion is a slight hazard in these areas.

Urban land is not assigned a capability rating or a woodland suitability rating.

Va—Vimville loam, occasionally flooded. This is a deep, poorly drained, nearly level soil on broad stream terraces. This soil is occasionally flooded for brief periods, mostly during the winter and spring. Slopes range from 0 to 2 percent.

Typically, the surface layer is dark grayish brown loam about 4 inches thick. The subsurface layer, to a depth of about 12 inches, is gray loam that has brownish mottles. The upper part of the subsoil, to a depth of about 34 inches, is gray clay loam that has yellowish brown mottles. The lower part of the subsoil to a depth of 65 inches or more is gray clay loam mottled in shades of brown.

This soil is low in natural fertility. Reaction of the surface layer ranges from very strongly acid to slightly acid. Reaction in the upper part of the subsoil ranges from medium acid to neutral, and reaction in the lower part of the subsoil ranges from medium acid to mildly alkaline. Permeability is slow, and the water table fluctuates between depths of 1/2 foot and 1 foot in winter and spring. Available water capacity is high. Runoff is slow, and the erosion hazard is slight.

Included with this soil in mapping are small areas of Daleville and Quitman soils on low terraces. They make up about 10 to 15 percent of the map unit.

Most of the acreage is in woodland. A few areas are used for pasture. This soil is suited to pasture grasses and legumes. Pasture management includes surface field ditches, proper stocking, controlled grazing, and weed and brush control. Grazing is limited during wet periods. This soil is suited to row crops. Wetness and flooding are the main limitations for row crops. Surface field ditches and returning crop residue to the soil are needed.

This soil is well suited to loblolly pine, green ash, white oak, willow oak, and sweetgum. Use of logging equipment is limited during wet periods.

This soil is severely limited for urban uses and septic tank absorption fields because of flooding, slow permeability, and wetness.

This Vimville soil is in capability subclass IIIw and in woodland suitability group 2w9.

prime farmland

Prime farmland is one of several kinds of important farmlands defined by the U.S. Department of Agriculture. It is of major importance in providing the Nation's short- and long-range needs for food and fiber. The supply of high quality farmland is limited and the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, must encourage and facilitate use of our Nation's prime farmland with wisdom and foresight.

Prime farmland, as defined by the U.S. Department of Agriculture, is the land that is best suited to producing food, feed, forage, fiber, and oilseed crops. It has the soil quality, growing season, and moisture supply needed to economically produce a sustained high yield of crops when it is treated and managed using acceptable farming methods. Prime farmland produces the highest yields with minimal inputs of energy and economic resources, and farming it results in the least damage to the environment.

Prime farmland may now be in crops, pasture, woodland, or other land uses, but not urban and built-up land or water areas. It must either be used for producing food or fiber or be available for these uses.

Prime farmland usually has an adequate and dependable supply of moisture from precipitation. It also has a favorable temperature and growing season and has acceptable acidity or alkalinity. It has few or no rocks and is permeable to water and air. Prime farmland is not excessively erodible or saturated with water for long periods and is not frequently flooded during the growing season. The slope ranges mainly from 0 to 5 percent. For more detailed information on the criteria for prime farmland, consult the local staff of the Soil Conservation Service.

About 77,185 acres, or nearly 17 percent of Lauderdale County, meets the soil requirements for prime farmland. Approximately 9,500 acres of this prime farmland is used for crops. Crops grown on this land, mainly corn and soybeans, account for much of the county's total agricultural income each year.

The trend in land use in some parts of the county has resulted in the loss of some prime farmlands to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands for production; marginal lands generally are more erodible, droughty, and difficult to cultivate, and usually less productive.

Soil map units that make up prime farmland in Lauderdale County are listed in this section. This list does not constitute a recommendation for a particular land use. The extent of each listed map unit is shown in table 4. The location is shown on detailed soil maps in the back of this publication. The soil qualities that affect use and management are described in the section "Detailed soil map units."

The soil map units in the following list meet the soil requirements for prime farmland except where the use is urban or built-up land:[1]

Annemaine fine sandy loam
Cahaba fine sandy loam, 0 to 2 percent slopes
Kirkville fine sandy loam, occasionally flooded
McLaurin loamy sand, 2 to 5 percent slopes
Ora fine sandy loam, 2 to 5 percent slopes
Prentiss fine sandy loam, 0 to 2 percent slopes
Quitman loam, 0 to 2 percent slopes
Ruston fine sandy loam, 2 to 5 percent slopes
Savannah fine sandy loam, 0 to 2 percent slopes
Savannah fine sandy loam, 2 to 5 percent slopes
Sweatman fine sandy loam, 2 to 5 percent slopes, eroded

[1]Urban and built-up land is any contiguous unit of land 10 acres or more that is used for residences, industrial sites, commercial sites, construction sites, institutional sites, public administrative sites, railroad yards, small parks, cemeteries, airports, golf courses, spillways, shooting ranges, and so forth.

use and management of the soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

crops and pasture

James E. Johnson, soil conservationist, Soil Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed soil map units." Specific information can be obtained from the local office of the Soil Conservation Service or the Cooperative Extension Service.

cultivated crops. The purpose of cultivating is to reduce or eliminate weed competition. Cultivation of the soil also causes leaching of plant nutrients and increases the hazard of erosion. Suitable cropping systems are, therefore, needed to maintain organic matter content, to help control erosion, and to increase the level of fertility.

Close-growing or sod crops, annual cover crops, and legumes grown in sequence with row crops help to maintain organic matter content, control erosion, and build up fertility of soils. The number of years that a row crop is grown depends on the type of soil, the slope, and the degree of erosion hazard.

Fertilizer is needed on all cropland to increase yields. Crop residue should be shredded following harvest and left on the surface or disked into the surface layer of soils that are subject to flooding. The need for fertilizer varies with the soils and the type of crop. Soil tests help determine the correct amount and type of fertilizer to add. Recommendations can be obtained from the local office of the Cooperative Extension Service.

Some of the soils in the county have inadequate surface drainage and internal drainage. These soils need drainage tile and surface field ditches. Diversions are needed to protect bottom land from excessive runoff from higher elevations. Contour farming is needed on gently sloping soils to help control erosion and conserve moisture.

pasture. Good, well managed sod consisting of grasses and legumes helps prevent the soil from eroding, provides forage and feed for livestock, and builds up the organic matter content of the soils.

The soils of Lauderdale County are suited to a wide variety of grasses and legumes. Some soils are better suited than others. The local office of the Soil Conservation Service can suggest suitable plants for individual soils. The type of livestock enterprise and the individual needs of the farmer should also be considered.

Perennial grasses that are widely adapted to the soils are common bermudagrass, dallisgrass, improved bermudagrass, bahiagrass, and tall fescue. Legumes that are well adapted are white clover, crimson clover, arrowleaf clover, and annual lespedeza.

Fertilizer and lime are beneficial to all pastures. The amount, type, and frequency of application should be determined by a soil test. Grasses and legumes grow better and produce more forage when proper stocking rates and rotation grazing and other management practices are used.

Soil erosion is the major problem on most of the cropland and pasture in the county. Erosion is a hazard in areas where the slope is more than 2 percent.

Loss of the surface layer by erosion is damaging for two reasons. First, productivity is reduced as the surface layer is lost, and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a layer in or below the subsoil that limits the depth of the rooting zone. Such a layer includes a fragipan as in the Sweatman, Ora, and Savannah soils. Second, soil erosion on farmlands results in sediment entering streams. Control of erosion minimized the pollution of streams by sediment and improves the quality of water for municipal use, for recreation, for fish, and for wildlife habitat.

Soil drainage is the major management need on some of the acreage used for crops and pasture in the county. Unless artificial drainage is provided, the poorly drained and somewhat poorly drained soils are so wet that crops are damaged in most years. For example, the Bibb, Quitman, Daleville, and Vimville soils need drainage.

yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, animal manure, and green-manure crops; and harvesting that insures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils.

land capability classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor does it consider possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have slight limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production. No soils in Lauderdale County are in class VIII.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony;

and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry. No soils in Lauderdale County are in subclass c.

The acreage of soils in each capability class and subclass is shown in table 6. The capability classification of each map unit is given in the section "Detailed soil map units."

woodland management and productivity

Robert L. Grigsby, forester, Soil Conservation Service, helped prepare this section.

Lauderdale County is about 71 percent woodland. Farmers own about 9 percent of the commercial forest land; other private owners, about 70 percent; public owners, about 5 percent; and the forest products industry, about 16 percent (*11*).

Rather rapid change is taking place in ownership of woodland because of the increased demand for living space. This demand is also reflected in the changes from full-time to part-time farming and from farms to subdivisions.

The increased demand for wood products places more importance on the soil and the trees suited to it for commercial wood production (fig. 8).

Soils influence the growth of tree crops by providing a reservoir of moisture and all essential elements for growth except those that derived from the atmosphere—carbon and oxygen. The kind of tree and its growth show a direct relationship between soil depth, texture, structure, topographic position, acidity, and inherent fertility.

Southern pines require an acid soil to become established. Once the trees are established, growth and productivity depend on depth, texture, and available

Figure 8.—One of several woodyards in the county that offer a market for pine and hardwood timber. This woodyard is on Urban land.

moisture. Good quality hardwoods require high inherent fertility along with depth, texture, and moisture. Although hardwoods will grow on all soils, the species that grow well on any individual soil are determined by the inherent fertility and available water capacity of the soil.

In Lauderdale County, five forest types make up 328,600 acres of woodland (*11*). Forest type is the descriptive term used to group stands of trees that have similar characteristics and development because of certain ecological factors. The five types in the county are loblolly-shortleaf pine, the largest group, occupying 42 percent of the woodland; oak-hickory about 21 percent; oak-pine about 21 percent; oak-gum-cypress about 14 percent; and longleaf-slash pine about 2 percent.

Table 7 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination (woodland suitability) symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *c*, clay in the upper part of the soil; and *s*, sandy texture. The letter *o* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: w, t, c, and s.

In table 7, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

The third part of the symbol, a number indicates the kind of trees for which the soils in a group are best suited, and also the severity of the limitation. The numbers 1, 2, and 3 indicate slight, moderate, and severe limitations, respectively, and suitability for needleleaf trees; 4, 5, and 6, slight, moderate, and severe limitations, respectively, and suitability for broadleaf trees; and 7, 8, and 9, slight, moderate, and severe limitations, respectively, and suitability for both needleleaf and broadleaf trees.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree to which the soil affects the mortality of tree seedlings. Plant competition is not considered in the ratings. The ratings apply to seedlings from good stock that are properly planted during a period of sufficient rainfall. A rating of *slight* indicates that the expected mortality is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

Ratings of *plant competition* indicate the degree to which undesirable plants are expected to invade where there are openings in the tree canopy. The invading plants compete with native plants or planted seedlings. A rating of *slight* indicates little or no competition from other plants; *moderate* indicates that plant competition is expected to hinder the development of a fully stocked stand of desirable trees; *severe* indicates that plant competition is expected to prevent the establishment of a desirable stand unless the site is intensively prepared, weeded, or otherwise managed to control undesirable plants.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. Site index was determined at age 30 years for eastern cottonwood, 35 years for American sycamore, and 50 years for all other species. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suited to the soils and to commercial wood production.

woodland understory vegetation

David W. Sanders, range conservationist, Soil Conservation Service, helped prepare this section.

Understory vegetation consists of grasses, forbs, shrubs, and other plants. Some woodland, if well managed, can produce enough understory vegetation to support grazing of livestock or wildlife, or both, without damage to the trees.

The quantity and quality of understory vegetation vary with the kind of soil, the age and kind of trees in the canopy, the density of the canopy, and the depth and condition of the litter. The density of the canopy determines the amount of light that understory plants receive.

Table 8 shows, for each soil suitable for woodland use, the potential for producing understory vegetation. The total production of understory vegetation includes

the herbaceous plants and the leaves, twigs, and fruit of woody plants up to a height of 4-1/2 feet. It is expressed in pounds per acre of air-dry vegetation in favorable, normal, and unfavorable years. In a favorable year, soil moisture is above average during the optimum part of the growing season; in a normal year, soil moisture is average; and in an unfavorable year, it is below average.

Table 8 also lists the common names of the characteristic vegetation on each soil and the percentage composition, by air-dry weight, of each kind of plant. The table shows the kind and percentage of understory plants expected under a canopy density that is most nearly typical of woodland in which the production of wood crops is highest.

recreation

E. E. Dorrill, III, landscape architect, Soil Conservation Service, helped prepare this section.

The soils of the survey area are rated in table 9 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its visual quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 9, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 9 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 12 and interpretations for dwellings without basements and for local roads and streets in table 11.

Camp areas require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic (fig. 9). The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for walking, horseback riding, and bicycling should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

wildlife habitat

David R. Thomas, wildlife biologist, Soil Conservaton Service, helped prepare this section.

Of all the factors that affect wildlife populations, the way people use the land is the most important. Regardless of how well suited a soil may be for a wildlife habitat, if the present land use eliminates the plant associations for wildlife habitat, the animals will not be there. For this reason, the kinds and numbers of wild animals in Lauderdale County have varied since the area was settled.

Before Lauderdale County was settled, the area was predominantly forest. Pines were dominant, and

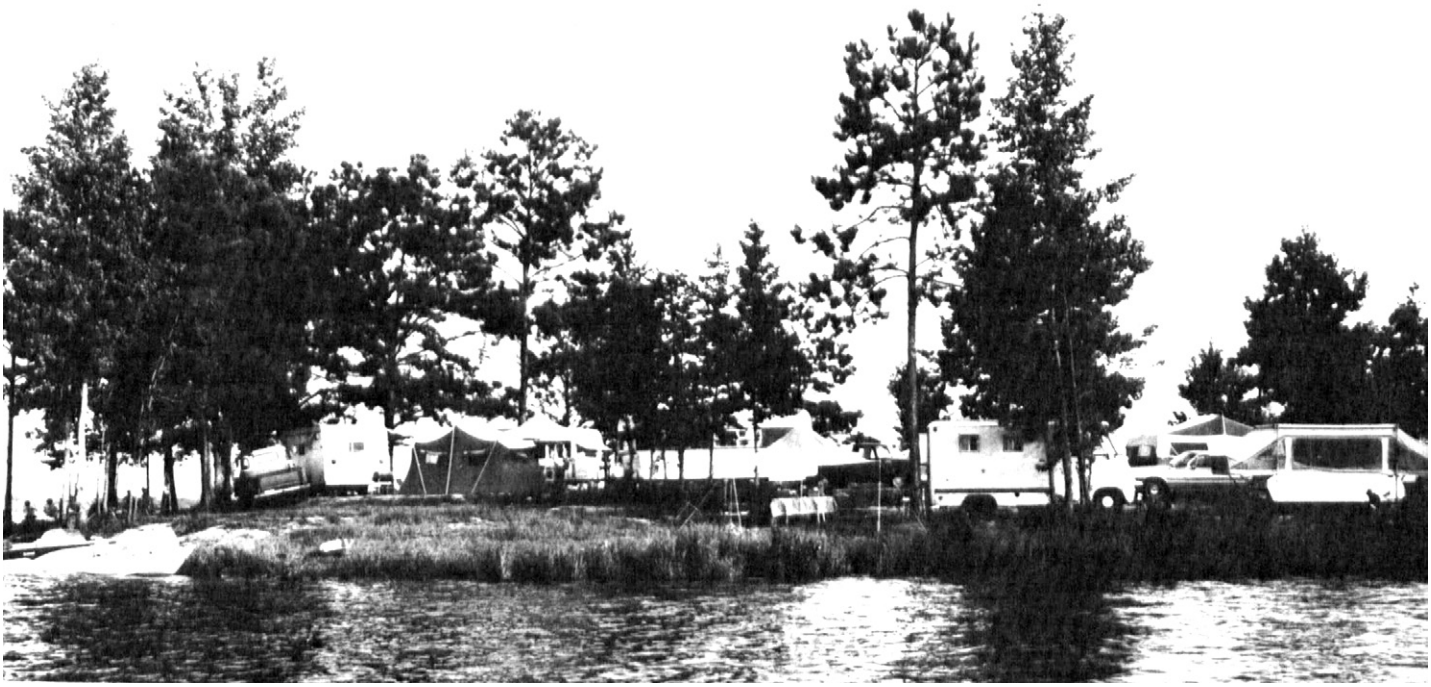


Figure 9.—Camp area of Okatibbee Lake on Savannah fine sandy loam, 2 to 5 percent slopes, which is moderately limited for such uses because of wetness and the moderately slow permeability.

hardwoods grew along the streams. Animals living in these forests were squirrels, deer, turkeys (fig. 10), bobcats, wolves, eagles, and many kinds of birds, including the now extinct passenger pigeon.

As this area was settled, logging and land clearing pushed the woodland animals farther back into remote areas. In their place came animals adapted to openland. Clearing of fields, logging, burning, and other soil disturbances created vegetation for habitat for bobwhite quail, rabbits, doves, many types of ground- and brush-inhabiting songbirds, rodents, and reptiles.

This openland habitat was responsible for high populations of bobwhite quail. As this trend continued, the numbers of forest animals further declined. First, wolves, panthers, deer, and turkeys became scarce. Agricultural and industrial demands and methods continued to change. After World War II, reforestation and wildlife management efforts began. With restocking and management, deer and turkeys are increasing in the area. More intensive farming methods have caused some decline in the numbers of farm animals and openland wild animals. The kinds and numbers of wild animals will continue to change as man's methods and demands on the land change.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 10, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, sorghum, millet, wheat, oats, and sunflowers.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, bahiagrass, ryegrass, panicgrass, clover, and annual and bush lespedezas.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are perennial lespedeza, wild bean, beggarweed, and pokeberry.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, beech, dogwood, hickory, blackberry, and blueberry. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are wild grape, autumn-olive, and crabapple.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are loblolly, longleaf, and shortleaf pines.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are

Figure 10.—Wild turkeys feeding in a bahiagrass pasture on Quitman loam, 0 to 2 percent slopes. This soil has good potential for use as habitat for openland and woodland wildlife.

texture of the surface layer, wetness, reaction, and slope. Examples of wetland plants are smartweed, wild millet, wildrice, spikerush, burreed, cattails, pondweeds, waterlilies, rushes, sedges, and tearthumb.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include bobwhite quail, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, ruffed grouse, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, deer, and bear.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, shore birds, muskrat, mink, and beaver.

engineering

Harry C. Huey, agricultural engineer, Soil Conservation Service, helped prepare this section.

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations before design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and (8) predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

building site development

Table 11 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrink-swell potential, and organic layers can cause the movement of footings. A high water table, depth to bedrock and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock, a high water table, flooding, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, and depth to a high water table affect the traffic supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock, the available water capacity in the upper 40 inches, and the content of sodium, affect plant growth. Flooding, wetness, slope, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

sanitary facilities

Table 12 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 12 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock, and flooding affect absorption of the effluent. Bedrock interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to effectively filter the effluent. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage (fig. 11) while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 12 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth

to bedrock, flooding, large stones, and content of organic matter.

Excessive seepage caused by rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope and bedrock can cause construction problems.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 12 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock, a high water table, slope, and flooding affect both types of landfill. Texture, stones, soil reaction, and content of sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

construction materials

Table 13 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil

Figure 11.—Animal waste lagoons on Ruston fine sandy loam, 2 to 5 percent slopes. This soil has a moderate rating for lagoons.

properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 13, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

water management

Table 14 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in

construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment (fig.12). Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones, organic matter, or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and potential frost action. Excavating and grading and the stability of ditchbanks are affected by depth to

Figure 12.—This lake built to retard runoff in the Sowashee Watershed is in an area of Sweatman-Smithdale association, hilly.

bedrock, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as sodium. Availability of drainage outlets is not considered in the ratings.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to reduce erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock affect the construction of grassed waterways. Low available water capacity, restricted rooting depth, toxic substances such as sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

soil properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

engineering index properties

Table 15 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil series and their morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains particles coarser than sand, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (*1*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as SP, SM, and SC; and silty and clayey soils as ML, CL, MH, and CH. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are rounded to the nearest 5 percent.

Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

physical and chemical properties

Table 16 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, and plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earth-moving operations.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.05 to 0.69. The higher the value the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Organic matter is the plant and animal residue in the soil at various stages of decomposition.

In table 16, the estimated content of organic matter of the plow layer is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter of a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

soil and water features

Table 17 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of

deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt and water in swamps and marshes are not considered flooding.

Table 17 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *common* that it is likely under normal conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; November-May, for example, means that flooding can occur during the period November through May.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 17 are the depth to the seasonal high water table; the kind of water table—that is, perched, or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 17.

An apparent water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A perched water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severe corrosion environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

physical and chemical analyses of selected soils

D. E. Pettry, agronomist, Department of Agronomy, Mississippi Agricultural and Forestry Experiment Station, Mississippi State University, helped prepare this section.

The results of physical analysis of several typical pedons in the survey area are given in table 18 and the results of chemical analysis in table 19. The data are for soils sampled at carefully selected sites. The pedons are typical of the series and are described in the section "Soil series and their morphology." Soil samples were analyzed by the Soil Genesis and Morphology Laboratory

of the Mississippi Agricultural and Forestry Experiment Station.

Most determinations, except those for particle size analyses, were made on soil material smaller than 2 millimeters in diameter. Measurements reported as percent or quantity of unit weight were calculated on an ovendry basis. The methods used in obtaining the data are indicated in the list that follows except for particle size analyses and extractable cations. The codes in parentheses refer to published methods (*7*).

Extractable acidity—barium chloride-triethanolamine II (6H2a).
Cation-exchange capacity—ammonium acetate, pH 7.0 (5A1b).
Cation-exchange capacity—sum of cations (5A3a).
Base saturation—sum of cations, TEA, pH 8.2 (5C3).
Reaction (pH)—1:1 water dilution (8C1a).

physical analyses. The particle size analyses of these soils were obtained using Day's hydrometer method (*4*). Forty grams of soil were dispersed in 0.5 percent Calgon solution (sodium metaphosphate) by mixing 5 minutes in a blender. The dispersed soil was transferred to a sedimentation cylinder, made to 1,000 milliliters, and equilibrated overnight in a water bath at 30° C. The suspension was then mixed and allowed to settle. Hydrometer readings were taken at predetermined times to determine the clay content. The sand was separated by a 325-mesh sieve, dried, and weighed. All results are expressed on the basis of oven-dry weight at 110°.

The physical properties of soils, such as water infiltration and conduction, shrink-swell potential, crusting, ease of tillage, consistence, and available water capacity are closely related to soil texture (the percentage of sand, silt, and clay). Data for selected soils are shown in table 18.

The deep sandy and loamy soils of the uplands, such as Lakeland and McLaurin, have a high sand content. The coarse textured surfaces enhance rapid water infiltration, and they are droughty during prolonged dry periods.

The Arundel soils have a high content of montmorillonite clay. These clayey soils have a sticky and plastic subsoil that shrinks and swells upon drying and wetting. The plastic nature of these clayey soils requires special tillage. The silt content increases and the clay and sand content decreases where the lower horizon comes in contact with the underlying Tallahatta siltstone and sandstone.

The Bonn Variant soils have a relatively high silt content in the surface; this may result in surface crusting and excessive packing upon cultivation. The horizons that have a higher sodium content often have more dispersed clay which results in lower permeability and greater firmness. The horizons that have a higher sodium level are drier than adjacent horizons and contain less available water.

chemical analyses. Soil chemical properties and such features as permeability, structure, texture, and consistency influence the limitations and potential of an individual soil. Chemical properties are not evident in visual observations of a soil, and laboratory analyses are necessary to define these characteristics. The amount and type of clay minerals present and the organic matter content largely regulate the chemical nature of soils. These substances have the capacity to attract and hold cations. Exchangeable cations are positive-charged elements that are bonded to clay minerals and organic matter which are negative-charged. Laboratory data for representative soils are presented in table 19. These data are useful to properly classify and manage the soils.

Extractable cations were extracted with 1 normal ammonium acetate at pH 7.0. Calcium, magnesium, potassium, and sodium were determined with a Perkin-Elmer atomic absorption instrument using strontium chloride to suppress interference.

Soil chemical data are expressed as milliequivalents (meq) per 100 grams of dry soil. The data can be converted to the common units of pounds per acre for the surface plow layer. The plow layer, or topsoil, of average soils to a depth of 6.67 inches weighs about 2 million pounds. The conversions for the cations listed in table 19 are as follows:

Calcium (Ca) meq/100 grams X 400 = pounds per acre
Magnesium (Mg) meq/100 grams X 240 = pounds per acre
Potassium (K) meq/100 X 780 = pounds per acre
Sodium (Na) meq/100 grams X 460 = pounds per acre

The extractable cations may be removed or exchanged through leaching or plant uptake. This mechanism of cation exchange helps lime neutralize soil that is acid. About 1 milliequivalent per 100 grams of extractable acidity (hydrogen plus aluminum) requires 1,000 pounds of calcium carbonate per acre to neutralize it.

Many of the soils in Lauderdale County are acid and have a relatively low capacity to retain plant nutrients (cations) because of the influence of siliceous parent materials. Deep, well drained loamy soils on higher elevations, such as McLaurin soils, and sandy soils, such as Lakeland soils, are strongly acid or very strongly acid and have relatively low capacity to retain plant nutrients. However, crops on these soils respond to proper fertilizer.

Base saturation is related to weathering, and it reflects the replacement of bases by hydrogen. The Bonn Variant soils of the level, silty stream terraces have high base saturation levels that exceed 90 percent in the subsoils. The Bonn Variant soils contain relatively high levels of sodium which could be detrimental to row crops under certain conditions. Other soils on stream terraces like Quitman soils have lower base saturation levels, low pH levels, and very low sodium content.

Arundel and Lauderdale soils formed in the Tallahatta Formation, which outcrops extensively in the west-

central part of the county. The clayey Arundel soils have low calcium to magnesium ratios in the subsoil similar to the Tallahatta siltstone parent materials. Arundel soils also have a relatively high cation exchange capacity. This indicates a considerable proportion of the clay fraction is montmorillonitic clay. These soils are characterized by very low pH levels and high extractable acidity.

classification of the soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*8*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. In table 20, the soils of the survey area are classified according to the system. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Fluvaquents (*Fluv*, meaning flood plain, plus *aquent*, the suborder of the Entisols that have an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Fluvaquents.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is coarse-loamy, siliceous, acid, thermic Typic Fluvaquents.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series. Bibb series is an example of a coarse-loamy, siliceous, acid, thermic typic Fluvaquent in Lauderdale County.

soil series and their morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the Soil Survey Manual (*6*). Many of the technical terms used in the descriptions are defined in Soil Taxonomy (*8*). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed soil map units."

Annemaine series

The Annemaine series consists of deep, moderately well drained soils that formed in clayey material on stream terraces. Slopes range from 0 to 2 percent. The soils of the Annemaine series are clayey, mixed, thermic Aquic Hapludults.

Annemaine soils are associated with Bigbee, Cahaba, and Prentiss soils. All of these soils are on broad, low terraces that border flood plains. Bigbee soils have a sandy control section and are excessively drained. Cahaba soils are in slightly higher positions, have a fine-

loamy control section, and do not have mottles of chroma 2 in the upper 24 inches of the argillic horizon. Prentiss soils are in similar positions to those of the Annemaine soils, have a coarse-loamy control section, and have a fragipan.

Typical pedon of Annemaine fine sandy loam, in a pasture 1 1/2 miles west of Kewanee exit on Interstate 59, 500 feet east of overhead bridge, and 50 feet north of Interstate 59, NW1/4/NE1/4 sec. 32, T. 7 N., R. 18 E.

Ap—0 to 6 inches; dark brown (10YR 4/3) fine sandy loam; weak fine granular structure; friable; common fine roots; slightly acid; clear wavy boundary.
B21t—6 to 10 inches; strong brown (7.5YR 5/6) clay loam; moderate medium angular structure and subangular blocky; firm; common medium roots; patchy clay films on faces of peds; strongly acid; gradual wavy boundary.
B22t—10 to 16 inches; yellowish red (5YR 4/8) clay; moderate medium angular structure and subangular blocky; firm; few medium roots; patchy clay films on faces of peds; strongly acid; gradual wavy boundary.
B23t—16 to 24 inches; yellowish red (5YR 4/8) clay loam; many distinct light brownish gray (10YR 6/2) mottles; moderate medium angular structure and subangular blocky; firm; few medium roots; patchy clay films on ped faces; strongly acid; gradual wavy boundary.
B24t—24 to 36 inches; mottled yellowish red (5YR 5/8), light brownish gray (10YR 6/2), pale brown (10YR 6/3), and red (2.5YR 4/8) clay loam; moderate medium subangular blocky structure; firm; very strongly acid; gradual wavy boundary.
B3—36 to 50 inches; mottled light brownish gray (10YR 6/2), strong brown (7.5YR 5/6), and yellowish red (5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; few patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.
C1—50 to 65 inches; mottled light brownish gray (10YR 6/2), strong brown (7.5YR 5/6), and yellowish brown (10YR 5/6) sandy loam; massive; friable; very strongly acid; gradual wavy boundary.
C2—65 to 80 inches; light brownish gray (10YR 6/2) loamy sand; few medium distinct strong brown (7.5YR 5/6) and brownish yellow (10YR 6/6) mottles; single grained; loose; very strongly acid.

Solum thickness is 40 to 60 inches. Reaction ranges from very strongly acid to slightly acid in the A horizon, except where surface areas have been limed. Reaction is very strongly acid or strongly acid in the B horizon. Clay content, by weighted average, in the upper 20 inches of the B horizon is 35 to 45 percent.

The Ap horizon is dark grayish brown, dark brown, grayish brown, dark yellowish brown, or very dark grayish brown.

The B21t horizon is strong brown, yellowish red, or reddish yellow. Texture is clay loam or clay.

The B22t horizon is yellowish red or red. The lower part of the B2t horizon is mottled in shades of yellow, red, brown, and gray. Texture is clay loam or clay.

The B3 horizon has color similar to that of the Bt horizon or is mottled in shades of gray, brown, and yellow. Texture is loam, sandy clay loam, or clay loam.

The C horizon is mottled in shades of gray, yellow, brown, and red, or has a matrix in shades of red, brown, or gray with mottles of yellow and brown. Texture is sandy loam, loamy sand, or fine sandy loam. It may be stratified.

Arundel series

The Arundel series consists of moderately deep, well drained soils that formed in clayey material underlain by strata of sandstone, siltstone, or buhrstone in hilly uplands. Slopes are 5 to 35 percent. The soils of the Arundel series are clayey, montmorillonitic, thermic Typic Hapludults.

The Arundel soils are associated with Lauderdale, Smithdale, Sweatman, and Williamsville soils. Lauderdale soils, which are in similar positions to those of Arundel soils, have a loamy control section and a solum less than 20 inches thick. Smithdale soils, which are on ridgetops and side slopes, have a fine-loamy control section and formed in thick loamy marine deposits. Sweatman soils, which are on slopes, have stratified loamy material and soft weathered clayey shale at depths ranging from 20 to 40 inches. Williamsville soils, which are on ridgetops and side slopes, have a solum greater than 60 inches and are underlain by thick sandy sediments high in glauconite.

Typical profile of Arundel sandy loam, in an area of Arundel-Lauderdale association, hilly, in a wooded area I mile west of Meehan on U.S. Highway 80, and 20 feet south of road, SE1/4SE1/4 sec. 29, T. 6 N., R. 14 E.

A1—0 to 6 inches; very dark gray (10YR 3/1) sandy loam; weak fine and medium granular structure; friable; many fine roots; common fragments and small sandstones, about 3 percent of volume; very strongly acid; clear smooth boundary.
B21t—6 to 26 inches; dark yellowish brown (10YR 4/4) clay; moderate medium subangular blocky structure; firm; common fine and medium roots; nearly continuous clay films on faces of peds; common fragments and small sandstones ranging from 8 to 25 millimeters in diameter, about 10 percent of volume; very strongly acid; gradual wavy boundary.
B22t—26 to 38 inches; dark yellowish brown (10YR 4/4) clay; moderate medium subangular blocky structure; firm; common fine and medium roots; nearly continuous clay films on faces of peds; common sandstones ranging from 15 to 150 millimeters in diameter, about 15 percent of the volume; very strongly acid; clear irregular boundary.
Cr—38 to 45 inches; stratified sandstone, siltstone, and buhrstone; fragments have pale brown (10YR 6/3)

interior; dark brown (7.5YR 4/2) silt coating between the fractures; yellowish brown stain throughout rock structure; rock layers can be cut with a spade.

Solum thickness is 20 to 40 inches; reaction is extremely acid to strongly acid throughout, except where the surface layer has been limed.

The A horizon is very dark gray, dark grayish brown, brown, or very dark grayish brown, and has up to 15 percent fragments of sandstone, buhrstone, or siltstone. In some places there is a thin A2 horizon of brown or pale brown loam or sandy loam.

The Bt horizon is dark yellowish brown, dark brown, yellowish red, reddish brown, yellowish brown, or strong brown, and has up to 15 percent, by volume, fragments of sandstone, siltstone, or buhrstone. Texture is clay, silty clay, silty clay loam, or clay loam. Clay content, by weighted average, in the upper 20 inches of the B horizon is 35 to 60 percent.

The Cr horizon is stratified sandstone, buhrstone, and siltstone or thick beds of any of the above. In fresh exposures, it can be cut with a spade.

Bibb series

The Bibb series consists of deep, poorly drained soils formed in stratified loamy and sandy alluvium on flood plains. Slopes range from 0 to 2 percent. The soils of the Bibb series are coarse-loamy, siliceous, acid, thermic Typic Fluvaquents.

Bibb soils are associated with Bigbee, Jena, and Kirkville soils. All of these soils are in higher positions on flood plains and natural levees and are better drained than Bibb soils. In addition, Bigbee soils have a sandy control section, and Jena and Kirkville soils have a cambic B horizon.

Typical pedon of Bibb sandy loam, in an area of Kirkville-Bibb complex, frequently flooded, in a wooded area approximately 1 1/2 miles east of Kewanee, 3/4 mile south, and 800 feet east of road, NE1/4NW1/4 sec. 36, T. 7 N., R. 18 E.

A11—0 to 2 inches; dark grayish brown (10YR 4/2) sandy loam; few medium distinct strong brown (7.5YR 5/6) mottles; weak medium granular structure; friable; few fine roots; strongly acid; abrupt smooth boundary.

A12g—2 to 7 inches; grayish brown (10YR 5/2) sandy loam; few medium faint dark yellowish brown (10YR 4/4) mottles; weak medium granular structure; friable; few fine roots; strongly acid; clear smooth boundary.

C1g—7 to 30 inches; gray (10YR 5/1) sandy loam; few medium distinct yellowish brown (10YR 5/6) mottles; massive; loose; very strongly acid; clear smooth boundary.

C2g—30 to 44 inches; light brownish gray (10YR 6/2) sandy loam; few medium distinct brownish yellow (10YR 6/6); and reddish yellow (7.5YR 6/8) mottles; massive; loose; very strongly acid; clear smooth boundary.

C3g—44 to 65 inches; light brownish gray (10YR 6/2); sandy loam; common medium distinct brownish yellow (10YR 6/8) and yellowish red (5YR 5/6) mottles; massive; very friable; very strongly acid.

Reaction ranges from very strongly acid to strongly acid throughout.

The A11 horizon is dark gray or dark grayish brown. The A12g horizon is gray, dark gray, grayish brown, or very dark grayish brown.

The Cg horizon is light gray, gray, dark gray, light brownish gray, or grayish brown and has mottles in shades of red, brown, and yellow. Texture is stratified sandy loam, fine sandy loam, and loam. Sandy strata occur in places. Clay content, by weighted average, in the 10- to 40-inch control section is 8 to 18 percent.

Bigbee series

The Bigbee series consists of deep, excessively drained soils that formed in thick sandy alluvium on flood plains and stream terraces. Slopes are 0 to 2 percent. The soils of the Bigbee series are thermic, coated Typic Quartzipsamments.

Bigbee soils are associated with Annemaine, Bibb, Cahaba, and Jena soils. Annemaine soils, which are in similar positions to those of Bigbee soils, have a clayey control section and are not as well drained. Bibb soils, which are on flood plains, have a coarse-loamy control section and are dominantly gray. Cahaba soils, which are on slightly higher terraces, have a fine-loamy control section. Jena soils, which are on flood plains, have a coarse-loamy control section.

Typical pedon of Bigbee loamy sand, occasionally flooded, in a pasture 1 3/4 miles south of Savoy and 1/4 mile east of U.S. Highway 11, NE1/4SE1/4 sec. 28, T. 5 N., R. 15 E.

Ap—0 to 8 inches; dark yellowish brown (10YR 4/4) loamy sand; weak fine granular structure; friable; common fine roots; medium acid; clear smooth boundary.

C1—8 to 18 inches; strong brown (7.5YR 5/6) loamy sand; single grained; loose; few fine roots; strongly acid; gradual wavy boundary.

C2—18 to 38 inches; brownish yellow (10YR 6/8) loamy sand; single grained; loose; strongly acid; gradual wavy boundary.

C3—38 to 50 inches; brownish yellow (10YR 6/8) loamy sand; few medium faint mottles of strong brown (7.5YR 5/8); single grained; loose; few pockets of uncoated sandgrains; strongly acid; gradual wavy boundary.

C4—50 to 75 inches; light yellowish brown (10YR 6/4) fine sand; common medium distinct mottles of

strong brown (7.5YR 5/8); single grained; loose; common pockets of uncoated sandgrains; very strongly acid.

Thickness of the loamy sand and sand is 75 inches or more. Reaction ranges from very strongly acid to medium acid throughout, except where the surface layer has been limed.

The A horizon is dark yellowish brown, dark grayish brown, or brown.

The upper part of the C horizon is yellowish brown, light yellowish brown, yellowish red, or strong brown. The lower part is light yellowish brown, yellowish brown, or pale brown, and in places it has mottles in shades of brown. Pockets of uncoated sand grains are common. Texture is sand or fine sand. Silt plus clay content, by weighted average, in the 10- to 40-inch control section is 5 to 10 percent.

Bonn Variant

The Bonn Variant consists of deep, poorly drained soils that are high in exchangeable sodium. They formed in loamy sediments on flood plains. Slopes range from 0 to 1 percent. The soils of Bonn Variant are fine-loamy, siliceous, thermic Glossic Natraqualfs.

Bonn Variant soils are associated with Daleville and Vimville soils. These soils are in similar positions, but Daleville and Vimville soils do not have a natric horizon. In addition, Daleville soils have less than 35 percent base saturation.

Typical pedon of Bonn Variant loam, occasionally flooded, in a wooded area about 1 mile north of Kewanee and 600 feet east of road, NE1/4NW1/4 sec. 22, T. 7 N., R. 18 E.

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) loam; weak fine granular structure; very friable; very strongly acid; many medium and fine roots; clear smooth boundary.

A2g—3 to 5 inches; grayish brown (10YR 5/2) loam; few medium faint light gray (10YR 7/2) mottles; moderate medium granular structure; friable; common fine roots; neutral; abrupt irregular boundary.

B21tg—5 to 15 inches; gray (10YR 5/1) loam; interior of peds have common medium prominent strong brown (7.5YR 5/6) and common fine distinct yellowish brown (10YR 5/6) mottles; faces of peds are coated with light gray (10YR 7/2) very fine sandy loam coatings that are 2 to 5 millimeters thick on vertical faces; moderate coarse prismatic structure that parts to moderate medium subangular blocky; firm; common fine and medium roots; clay films on faces of peds beneath coating; few to many vesicles are in coating; strongly alkaline; gradual irregular boundary.

B22tg—15 to 28 inches; gray (10YR 6/1) loam; interior of peds have common medium prominent strong brown (7.5YR 5/6) and common fine distinct yellowish brown (10YR 5/6) mottles; vertical faces of peds are coated with light brownish gray (10YR 6/2) very fine sandy loam that is 2 to 5 millimeters thick; moderate coarse prismatic structure that parts to moderate medium subangular blocky; common fine roots; thick dark gray clay films on faces of peds below coating; few medium calcium carbonate concretions; moderately alkaline; gradual irregular boundary.

B23tg—28 to 38 inches; gray (10YR 5/1) sandy clay loam; many medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) mottles; vertical faces of peds are coated with grayish brown (10YR 5/2) very fine sandy loam that extends from horizon above; weak coarse prismatic structure that parts to moderate medium subangular; friable; continuous clay films on faces of peds; few medium calcium carbonate concretions; moderately alkaline; gradual irregular boundary.

B3g—38 to 58 inches; gray (10YR 5/1) fine sandy loam; many medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) mottles; vertical faces are covered with grayish brown (10YR 5/2) very fine sandy loam that extends from horizon above; weak coarse prismatic structure that parts into weak medium subangular blocky; friable; patchy clay films on faces of peds; neutral; gradual wavy boundary.

C—58 to 62 inches; gray (10YR 6/1) fine sandy loam; many medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) mottles; massive; friable; many fine mica flakes; moderately alkaline.

Solum is less than 60 inches thick. Reaction ranges from very strongly acid to neutral in the A horizon and from medium acid to strongly alkaline in the B horizon.

The A1 horizon is very dark grayish brown, brown, or dark gray. The A2g horizon is grayish brown, gray, light gray, or light brownish gray.

The B2tg horizon is gray, olive gray, grayish brown, or light grayish brown and has few to common mottles in shades of gray and brown. Texture is loam, sandy clay loam, or clay loam. Gray coatings of very fine sandy loam or silt loam are on faces of peds. Thickness of the coatings is from 2 to 10 millimeters. These coatings may continue into the horizon below.

The B3g horizon is gray, grayish brown, or it is mottled in shades of gray, brown, and yellow. Texture is sandy clay loam, loam, or fine sandy loam.

The C horizon is gray or light grayish brown or brown, or it is mottled shades of gray and brown. Texture is loamy fine sand, fine sandy loam, loam, or sandy loam.

Cahaba series

The Cahaba series consists of deep, well drained soils that formed in loamy alluvial deposits on stream terraces. Slopes range from 0 to 2 percent. The soils of

the Cahaba series are fine-loamy, siliceous, thermic Typic Hapludults.

Cahaba soils are associated with Annemaine, Bigbee, and Prentiss soils. Annemaine soils are in slightly lower positions than Cahaba soils, have a clayey control section, and have mottles of chroma 2 or less within the upper 24 inches of the argillic horizon. Bigbee soils are in similar positions, have a sandy control section, but do not have a diagnostic horizon. Prentiss soils are in closely related positions, have a coarse-loamy control section, have a B horizon that has hue of 7.5YR or less, and have a fragipan.

Typical pedon of Cahaba fine sandy loam, 0 to 2 percent slopes, in a wooded area about 0.7 mile south of Savoy, 0.5 mile east of dirt road, and 0.5 mile northeast of county road, NW1/4SW1/4 sec. 22, T. 5 N., R. 15 E.

A1—0 to 2 inches; very dark grayish brown (10YR 3/2) fine sandy loam; weak fine granular structure; very friable; many fine roots; medium acid; abrupt smooth boundary.

A2—2 to 8 inches; brown (10YR 5/3) fine sandy loam; weak medium structure; friable; few medium roots; medium acid; clear smooth boundary.

B21t—8 to 12 inches; yellowish red (5YR 5/6) loam; weak medium subangular blocky structure; friable; few fine roots; sand grains coated and bridged with clay; strongly acid; clear smooth boundary.

B22t—12 to 24 inches; red (2.5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; sand grains coated and bridged with clay; patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23t—24 to 40 inches; yellowish red (5YR 5/6) loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; very strongly acid; gradual smooth boundary.

C—40 to 65 inches; yellowish brown (10YR 5/8) loamy fine sand; weak, fine, and medium subangular blocky structure; very friable; common medium pockets of uncoated sand grains; very strongly acid.

Solum thickness ranges from 36 to 60 inches. Reaction ranges from very strongly acid to medium acid throughout, except where the surface layer has been limed.

The A1 or Ap horizon is very dark grayish brown, dark grayish brown, or grayish brown. The A2 horizon is a dark brown, brown, or light yellowish brown.

The Bt horizon is a yellowish red or red. In some places the lower part of the Bt horizon has mottles in shades of yellow and brown. Texture is loam, clay loam, or sandy clay loam. In some places, there is a B3 horizon. It is yellowish brown or red and has mottles in shades of yellow and brown. Texture is loam or sandy loam. Clay content in the upper 20 inches of the B horizon is 18 to 35 percent.

The C horizon is yellowish brown, brown, strong brown, or red. Some pedons have mottles of yellow, brown, and gray. Texture is sand, loamy fine sand, sandy loam, or fine sandy loam.

Daleville series

The Daleville series consists of deep, poorly drained soils that formed in loamy alluvium on stream terraces. Slopes range from 0 to 2 percent. The soils of the Daleville series are fine-loamy, siliceous, thermic Typic Paleaquults.

Daleville soils are associated with Bonn Variant, Jena, Quitman, and Vimville soils. Bonn Variant soils are in lower positions on stream terraces and have a natric horizon. Jena soils, which are on natural levees of the flood plains, have a coarse-loamy control section but do not have a gleyed argillic horizon. Quitman soils, which on slightly higher terraces, do not have dominant gray colors in the upper 30 inches the solum. Vimville soils have a base saturation greater than 35 percent.

Typical pedon of Daleville loam, occasionally flooded, in pasture 0.5 mile east of junction of State Highway 39 and Navy Base Road, and 0.2 mile south of Navy Base Road, SW1/4SE1/4 sec. 15, T. 8 N., R. 16 E.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) loam; many medium distinct dark yellowish brown (10YR 4/4) mottles; weak fine granular structure; friable; many fine and medium roots; slightly acid; clear smooth boundary.

A2g—6 to 16 inches; light brownish gray (10YR 6/2) loam; many medium distinct yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to weak fine and medium subangular blocky; friable; few fine roots; slightly acid; clear irregular boundary.

B21tg—16 to 24 inches; gray (10YR 6/1) loam; many medium distinct yellowish brown (10YR 5/6) mottles; moderate medium prismatic structure parting to moderate medium subangular blocky; firm, plastic; few fine roots; few tongues of gray silt between prisms; few patchy clay films on faces of peds; strongly acid; clear irregular boundary.

B22tg—24 to 40 inches; gray (10YR 5/1) clay loam; many medium distinct strong brown (7.5YR 5/8) mottles; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm, plastic; few fine roots; few tongues of gray silt between prisms; few patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23tg—40 to 55 inches; gray (10YR 5/1) clay loam; many medium distinct strong brown (7.5YR 5/6) and few fine distinct yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, plastic; few seams of gray silt loam between prisms; few patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B24tg—55 to 70 inches; gray (10YR 6/1) clay loam; common medium distinct strong brown (7.5YR 5/6)

and few fine distinct yellowish brown (10YR 5/6) mottles; few medium prominent red (2.5YR 5/6) mottles; weak medium subangular blocky structure; firm, plastic; few patchy clay films on faces of peds; very strongly acid.

Solum thickness is 60 inches or more. Reaction ranges from very strongly acid to slightly acid in the A horizon, and it is very strongly acid or strongly acid in the B horizon.

The A1 horizon is very dark gray or dark grayish brown. The Ap or A2 horizon is dark grayish brown, grayish brown, light brownish gray, or gray.

The Btg horizon is gray, dark gray, or light brownish gray and has few to many mottles in shades of brown, yellow, and red. Texture is clay loam or loam. Clay content, by weighted average, in the upper 20 inches of the B horizon is 18 to 35 percent.

Eustis series

The Eustis series consists of deep, excessively drained soils that formed in sandy material on uplands. Slopes range from 0 to 5 percent. The soils of the Eustis series are sandy, siliceous, thermic Psammentic Paleudults.

Eustis soils are associated with Heidel, Lakeland, and McLaurin soils. Heidel soils, which are on side slopes, have a coarse-loamy control section. Lakeland soils, which are on ridges, do not have an argillic horizon. McLaurin soils, which are on ridgetops, have a coarse-loamy control section.

Typical profile of Eustis loamy sand, 0 to 5 percent slopes, in a wooded area, 3 miles southeast of Meridian on 22d Avenue Height Road, 1/2 mile north, and 1/2 mile northeast on woods road, NE1/4NW1/4 sec. 26, T. 6 N., R. 16 E.

A1—0 to 6 inches; very dark grayish brown (10YR 3/2) loamy sand; weak fine granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

A2—6 to 14 inches; dark yellowish brown (10YR 4/4) loamy sand; weak fine granular structure; very friable; few fine and medium roots; strongly acid; clear smooth boundary.

B21t—14 to 26 inches; strong brown (7.5YR 5/6) loamy sand; moderate medium granular structure; friable; sand grains coated and bridged with clay; strongly acid; gradual smooth boundary.

B22t—26 to 64 inches; yellowish red (5YR 5/6) loamy sand; moderate medium granular structure; friable; sand grains coated and bridged with clay; strongly acid; gradual smooth boundary.

C—64 to 70 inches; reddish yellow (7.5YR 6/8) sand; structureless; single grained; loose; common medium pockets of uncoated sand grains; strongly acid.

Solum thickness is 60 inches or more. Reaction is very strongly acid or strongly acid, except where the surface layer has been limed.

The A1 or Ap horizon is very dark grayish brown, dark grayish brown, dark brown, or dark yellowish brown. The A2 horizon is dark yellowish brown or yellowish brown.

The Bt horizon is brown, red, yellowish red, reddish yellow, strong brown, or brown. The texture is loamy sand or loamy fine sand. In some places, the lower part of the Bt horizon has pockets of uncoated sand grains.

Heidel series

The Heidel series consists of deep, well drained soils that formed in loamy material on uplands. Slopes range from 8 to 30 percent. The soils of the Heidel series are coarse-loamy, siliceous, thermic Typic Paleudults.

Heidel soils are associated with Eustis, Lucy, and McLaurin soils. Eustis soils, which are on ridgetops, have a sandy control section that has 10 to 15 percent clay. Lucy soils, which are on upper side slopes and ridgetops, have an epipedon more than 20 inches thick that is sandy. McLaurin soils, which are also on ridgetops, are bisequel.

Typical pedon of Heidel loamy sand, in an area of Lucy-Heidel association, rolling, in woods approximately 7 miles east of Lauderdale, 1/2 mile south of county road, and 600 feet east of field, SW1/4NE1/4 sec. 25, T. 8 N., R. 18 E.

A1—0 to 6 inches; dark brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; common fine roots; strongly acid; clear smooth boundary.

B21t—6 to 15 inches; yellowish red (5YR 4/6) sandy loam; weak medium subangular blocky structure; common fine roots; friable; many fine and medium pores; sand grains coated and bridged with clay and oxides; strongly acid; gradual smooth boundary.

B22t—15 to 40 inches; red (2.5YR 4/6) sandy loam; weak medium subangular blocky structure; friable; many fine and medium pores; common fine roots; sand grains coated and bridged with clay and oxides; strongly acid; gradual smooth boundary.

B23t—40 to 70 inches; red (2.5YR 4/8) sandy loam; weak medium subangular blocky structure; friable; few fine pores; sand grains coated and bridged with clay and oxides; few pockets of uncoated sand grains; strongly acid; gradual smooth boundary.

B24t—70 to 80 inches; red (2.5YR 4/8) fine sandy loam; weak medium granular structure; very friable; sand grains coated and bridged with clay and oxides; few pockets of uncoated sand grains; strongly acid.

Solum thickness is 60 inches or more. Reaction is very strongly acid or strongly acid.

The A1 horizon is dark brown or dark grayish brown.

The B2t horizon is yellowish red or red. Texture is sandy loam or loam. The lower part of the Bt horizon

has few or common pockets of uncoated sand grains. Texture is sandy loam or fine sandy loam. Clay content, by weighted average, in the upper 20 inches of the Bt horizon is 10 to 18 percent.

Jena series

The Jena series consists of deep, well drained soils that formed in loamy alluvium on narrow flood plains. Slopes range from 0 to 2 percent. The soils of the Jena series are coarse-loamy, siliceous, thermic Fluventic Dystrochrepts.

Jena soils are associated with Bibb, Bigbee, Daleville, and Kirkville soils. Bibb soils, which are also on flood plains, have a color matrix of chroma 2 and mottles within 20 inches of the surface. Bigbee soils, which are on stream terraces, are sandy in the 10- to 40-inch control section. Daleville soils, which are on stream terraces, have a fine-loamy control section and have a gleyed argillic horizon. Kirkville soils, which are in lower positions on flood plains, have mottles of chroma 2 or less within 24 inches of the surface.

Typical profile of Jena fine sandy loam, frequently flooded, in woods about 1.3 miles south of Sweat Steam Plant, and 800 feet west of water pipeline, NE1/4SW1/4 sec. 15, T. 5 N., R. 15 E.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak medium granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.

B21—4 to 18 inches; dark brown (10YR 4/3) fine sandy loam; weak medium granular and weak fine subangular blocky structure; friable; few fine roots; strongly acid; clear smooth boundary.

B22—18 to 26 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; few fine pores; strongly acid; gradual smooth boundary.

B23—26 to 38 inches; yellowish brown (10YR 5/6) fine sandy loam; few fine faint light yellowish brown mottles; weak medium subangular blocky structure; friable; few fine pores; strongly acid; gradual smooth boundary.

C1—38 to 60 inches; yellowish brown (10YR 5/6) loamy fine sand; few medium faint dark yellowish brown (10YR 4/4) mottles; massive in place parting to weak medium subangular blocky structure and granular; very friable; few medium pockets of uncoated sand grains; very strongly acid; gradual smooth boundary.

C2—60 to 65 inches; yellowish brown (10YR 5/4) loamy fine sand; structureless; single grained; common medium pockets of uncoated sand grains; very strongly acid.

Solum thickness is from 20 to 50 inches. Reaction ranges from very strongly acid to medium acid in the A horizon, and it ranges from very strongly acid to strongly acid in the B horizon.

The A horizon is dark grayish brown, grayish brown, brown, or dark brown.

The B horizon is yellowish brown, strong brown, brown, or light yellowish brown. Texture is fine sandy loam, sandy loam, loam, or loamy fine sand. Clay content, by weighted average, in the 10- to 40-inch control section is 10 to 18 percent.

The C horizon is pale brown, light yellowish brown, yellowish brown, or dark yellowish brown. Texture is fine sandy loam, loamy sand, sandy loam, or loamy fine sand.

Kirkville series

The Kirkville series consists of deep, moderately well drained soils that formed in loamy alluvial material on narrow flood plains. Slopes range from 0 to 2 percent. The soils of the Kirkville series are coarse-loamy, siliceous, thermic Fluvaquentic Dystrochrepts.

Kirkville soils are associated with Bibb, Jena, and Quitman soils. Bibb soils are in lower positions and are dominantly gray. Jena soils, which are on flood plains, do not have mottles of chroma 2 or less within 24 inches of the surface. Quitman soils, which are on stream terraces, have a fine-loamy control section and have a mottled gray argillic horizon.

Typical profile of Kirkville fine sandy loam, occasionally flooded, in a wooded area 1 1/4 miles east of Bailey, 150 feet east of bridge, and 150 feet north of county road, SE1/4SE1/4 sec. 6, T. 7 N., R. 18 E.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak medium granular structure; very friable; many fine roots; medium acid; abrupt smooth boundary.

B21—4 to 13 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium subangular blocky structure; friable; few fine roots; strongly acid; clear smooth boundary.

B22—13 to 25 inches; yellowish brown (10YR 5/4) loam; common medium faint very pale brown (10YR 7/4) and few medium faint grayish brown (10YR 5/2) mottles; weak medium subangular blocky structure; friable; few fine roots; strongly acid; clear smooth boundary.

B23—25 to 50 inches; mottled yellowish brown (10YR 5/4); pale brown (10YR 6/3) and grayish brown (10YR 5/2) fine sandy loam; weak medium subangular blocky structure; friable; few black concretions; strongly acid; gradual smooth boundary.

B24—50 to 65 inches; mottled light yellowish brown (10YR 6/4); light gray (10YR 7/2) and strong brown (7.5YR 5/8) loam; weak medium subangular blocky structure; friable; few black concretions; strongly acid.

Solum thickness ranges from 30 to 60 inches or more. Reaction is very strongly acid or strongly acid throughout, except where the surface layer has been limed.

The A horizon is dark grayish brown, dark brown, brown, or dark yellowish brown.

The B21 horizon is dark yellowish brown or yellowish brown. In some places, there are mottles of chroma 2 or less or the horizon is mottled in shades of brown and gray. The B22 horizon has similar matrix colors to those in the B21 horizon, but it has few to many mottles of chroma 2 or less, or it is mottled in shades of brown and gray.

The B23 and B24 horizons are grayish brown, light brownish gray, or gray and have few to many mottles in shades of brown and yellow, or they are mottled in shades of brown and gray. Texture is loam, sandy loam, or fine sandy loam. Clay content, by weighted average, in the upper 40 inches of the control section is 10 to 18 percent. In some places, there are black or brown concretions.

Lakeland series

The Lakeland series consists of deep, excessively drained soils that formed in sandy material on uplands. Slopes range from 0 to 5 percent. The soils of the Lakeland series are thermic, coated Typic Quartzipsamments.

Lakeland soils are associated with Eustis and Lucy soils. Eustis soils, which are on upland ridges, are redder and have an argillic horizon. Lucy soils, which also are on upland ridges and side slopes, have a sandy epipedon more than 20 inches thick over an argillic horizon.

Typical pedon of Lakeland sand, 0 to 5 percent slopes, in a wooded area 0.3 mile west of Experiment Station entrance and 700 feet north of road, NE1/4NE1/4 sec. 35, T. 7 N., R. 16 E.

A11—0 to 2 inches; dark brown (10YR 4/3) sand; single grained; loose; many clean sand grains; many fine roots; very strongly acid; abrupt smooth boundary.

A12—2 to 6 inches; very dark grayish brown (10YR 3/2) sand; single grained; loose, common fine and medium roots; very strongly acid; clear smooth boundary.

C1—6 to 16 inches; yellowish brown (10YR 5/6) sand; single grained; loose; few medium and large roots; common uncoated sand grains; very strongly acid; gradual wavy boundary.

C2—16 to 50 inches; strong brown (7.5YR 5/8) sand; single grained; loose; common uncoated sand grains; very strongly acid; gradual wavy boundary.

C3—50 to 75 inches; yellow (10YR 7/6) sand; few fine distinct strong brown (7.5YR 5/8) mottles; single grained; loose; common large pockets of uncoated sand grains; strongly acid.

Solum thickness is 60 inches or more. Reaction ranges from very strongly acid to medium acid throughout, except where the surface layer has been limed.

The A horizon is dark brown or very dark grayish brown.

The C horizon is yellowish brown, strong brown, yellowish red, reddish yellow, brownish yellow, or yellow. Texture is sand or fine sand.

Lauderdale series

The Lauderdale series consists of shallow, well drained soils that formed in loamy material overlying horizontally bedded sandstone, siltstone, and buhrstone on hilly uplands. Slopes range from 15 to 30 percent. The soils of the Lauderdale series are loamy, mixed, thermic, shallow Typic Hapludults.

Lauderdale soils are associated with Arundel and Sweatman soils. Arundel soils, which are on ridgetops and steep upland side slopes, have a clayey control section and a solum thicker than 20 inches. Sweatman soils, which are also on steep upland side slopes and ridges, have a clayey control section and have a substratum of softly weathered horizontally bedded shale and loamy material.

Typical profile of Lauderdale fine sandy loam, in an area of Arundel-Lauderdale association, hilly, in woods about 3 1/2 miles west of Interstate 20 and Lost Gap exit and 50 feet north of Interstate 20, SE1/4NW1/4 sec. 22, T. 6 N., R. 14 E.

A1—0 to 3 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

A2—3 to 7 inches; pale brown (10YR 6/3) fine sandy loam; few medium faint light yellowish brown mottles; weak fine granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

B2t—7 to 17 inches; yellowish brown (10YR 5/6) loam; few medium faint brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; friable; few fine roots; common medium sandstone fragments make up about 5 percent of the volume; very strongly acid; clear wavy boundary.

Cr—17 to 25 inches; stratified sandstone, siltstone, and buhrstone; strong brown (7.5YR 5/8) clay loam between fractures; few roots; sandstone, siltstone, and buhrstone can be cut with spade.

Solum thickness is 12 to 20 inches. Reaction is very strongly acid or strongly acid throughout.

The A1 horizon is very dark grayish brown or dark grayish brown. The A2 horizon is pale brown or yellowish brown.

The Bt horizon is yellowish brown, brown, or reddish brown, and has up to 10 percent sandstone fragments.

Some places have mottles in shades of yellow and brown. Texture is loam or silty clay loam. Clay content, by weighted average, of the B horizon is 20 to 35 percent.

The Cr horizon is stratified sandstone, buhrstone, and siltstone, or thick beds of any of the above. In fresh exposures, it can be cut with a spade.

Lucy series

The Lucy series consists of deep, well drained soils that formed in loamy and sandy material on hilly uplands. Slopes range from 8 to 30 percent. The soils of the Lucy series are loamy, siliceous, thermic Arenic Paleudults.

Lucy soils are associated with Heidel, Lakeland, and Smithdale soils. Heidel and Smithdale soils, which are on side slopes, do not have an A horizon thicker than 20 inches. Lakeland soils, which are on ridges, do not have an argillic horizon.

Typical profile of Lucy loamy sand in an area of Lucy-Heidel association, rolling, in woods about 7 miles east of Lauderdale, 4 miles south, and 700 feet east of field, SE1/4NE1/4 sec. 25, T. 18 N., R. 18 E.

A1—0 to 2 inches; brown (10YR 4/3) loamy sand; weak fine granular structure; very friable; many fine and medium roots; strongly acid; abrupt smooth boundary.

A21—2 to 12 inches; yellowish brown (10YR 5/4) loamy sand; weak medium granular structure; very friable; few fine and medium roots; strongly acid; clear smooth boundary.

A22—12 to 31 inches; brownish yellow (10YR 6/6) loamy sand; weak medium granular structure; very friable; few medium roots; strongly acid; clear smooth boundary.

B21t—31 to 43 inches; red (2.5YR 4/8) loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; few patchy clay films on faces of peds; strongly acid; clear smooth boundary.

B22t—43 to 65 inches; red (2.5YR 5/8) sandy loam; weak medium subangular blocky structure; very friable; sand grains coated and bridged with clay; few pockets of uncoated sand grains; strongly acid.

Solum thickness is 60 inches or more. Reaction is strongly acid or very strongly acid throughout, except where the surface layer has been limed.

The A1 horizon is dark brown, brown, or dark grayish brown. The A2 horizon is brown, yellowish brown, brownish yellow, or light yellowish brown.

The Bt horizon is yellowish red or red. The lower part of the Bt horizon has few to common pockets of uncoated sand grains. Texture is sandy loam or loam.

McLaurin series

The McLaurin series consists of deep, well drained soils that formed in loamy material on uplands. Slopes range from 2 to 8 percent. The soils of the McLaurin series are coarse-loamy, siliceous, thermic Typic Paleudults.

McLaurin soils are associated with Eustis, Heidel, and Ruston soils. Eustis soils, which are on ridges, have a sandy control section. Heidel soils, which are on side slopes, do not have a bisequel profile. Ruston soils, which are on ridges, have a fine-loamy control section.

Typical pedon of McLaurin loamy sand, 2 to 5 percent slopes, 6 miles east of Lauderdale on the asphalt road, 1/4 mile north, and in field 50 feet east of unimproved road, NE1/4SE1/4 sec. 24, T. 8 N., R. 18 E.

Ap—0 to 6 inches; brown (7.5YR 5/4) loamy sand; weak fine granular structure; very friable; very strongly acid; abrupt smooth boundary.

B21t—6 to 14 inches; yellowish red (5YR 4/8) sandy loam; weak medium subangular blocky structure; friable; thin patchy clay films on faces of peds; sand grains coated and bridged with clay; strongly acid; gradual smooth boundary.

B22t—14 to 38 inches; red (2.5YR 4/6) loam; weak medium subangular blocky structure; patchy clay films on faces of peds; sand grains coated and bridged with clay; very strongly acid; gradual smooth boundary.

B&A'2—38 to 44 inches; yellowish red (5YR 5/8) sandy loam (B); weak medium subangular blocky structure; very friable; common coarse pockets of very pale brown (10YR 7/4) (A'2) uncoated sand grains; few slightly brittle strong brown (7.5YR 5/8) pockets of sandy loam; very strongly acid; clear smooth boundary.

B'2t—44 to 65 inches; yellowish red (5YR 5/6) sandy loam; weak medium subangular blocky structure; very friable; few pockets of uncoated sand grains; sand grains coated and bridged with clay; very strongly acid.

The solum thickness is 60 inches or more. Reaction is very strongly acid or strongly acid throughout, except where the surface layer has been limed.

The Ap or A1 horizon is dark grayish brown, brown, dark brown, or dark yellowish brown. If present the A2 horizon is yellowish brown, light yellowish brown, or brown.

The B2t horizon is red or yellowish red. It is loam, sandy loam, or fine sandy loam. The upper 20 inches of the Bt horizon has clay content of 10 to 18 percent. The B&A'2 horizon has colors similar to those of the B2t horizon, except the A'2 material is pale brown or light yellowish brown. Texture is loamy sand or sandy loam. The B'2t horizon has colors similar to those of the B2t horizon. Texture is sandy loam, loam, or sandy clay loam.

Ora series

The Ora series consists of deep, moderately well drained soils that have a fragipan. These soils formed in loamy material on uplands. Slopes range from 2 to 12 percent. The soils of the Ora series are fine-loamy, siliceous, thermic Typic Fragiudults.

Ora soils are associated with Ruston and Savannah soils. Ruston soils, which are on ridgetops of the uplands, do not have a fragipan. Savannah soils, which are on broader ridgetops, have a Bt horizon in hue 7.5YR or yellower.

Typical pedon of Ora fine sandy loam, 2 to 5 percent slopes, in a pasture 3/4 mile east and 1/4 mile north of Causeyville and 50 feet east of county road, SE1/4SW1/4 sec. 22, T. 7 N., R. 17 E.

Ap—0 to 6 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; friable; few fine roots; medium acid; abrupt smooth boundary.

B21t—6 to 17 inches; yellowish red (5YR 4/8) loam; weak medium subangular blocky structure; friable; patchy clay films on faces of peds; sand grains coated and bridged with clay; strongly acid; gradual wavy boundary.

B22t—17 to 23 inches; yellowish red (5YR 5/8) loam; weak medium subangular blocky structure; friable; few brown concretions; patchy clay films on faces of peds; sand grains coated and bridged with clay; strongly acid; gradual wavy boundary.

Bx1—23 to 42 inches; mottled red (2.5YR 4/6), yellowish red (5YR 5/6), pale brown (10YR 6/3), and light brownish gray (10YR 6/2) sandy loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle in about 65 percent of the mass; many fine voids; patchy clay films on faces of peds; sand grains coated and bridged with clay; narrow seams of yellowish red (5YR 5/6) between prisms; very strongly acid; gradual wavy boundary.

Bx2—42 to 65 inches; mottled red (10R 4/6), strong brown (7.5YR 5/6), and light brownish gray (10YR 6/2) sandy clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle in about 65 percent of the mass; many fine voids; patchy clay films on faces of peds; sand grains coated and bridged with clay; narrow seams of strong brown (7.5YR 5/6) between prisms; very strongly acid.

Depth to the fragipan ranges from 18 to 42 inches. Reaction is very strongly acid or strongly acid throughout, except where the surface layer has been limed.

The Ap or A2 horizon is brown, yellowish brown, or dark grayish brown. The A horizon is very dark grayish brown or dark gray.

The Bt horizon is a yellowish red or red and has a few brown concretions. Texture is loam, clay loam, or sandy clay loam. Clay content, by weighted average, in the upper 20 inches of the B horizon is 18 to 33 percent.

The Bx horizon is yellowish red and has mottles of brown and gray or is mottled in shades of red, brown, yellow, and gray. Texture is a sandy loam, loam, or sandy clay loam.

Prentiss series

The Prentiss series consists of deep, moderately well drained soils that formed in loamy material on stream terraces. Slopes range from 0 to 2 percent. The soils of the Prentiss series are coarse-loamy, siliceous, thermic Glossic Fragiudults.

Prentiss soils are associated with Annemaine, Cahaba, and Quitman soils. Annemaine soils, which are on higher positions, are redder in the subsoil, have a clayey control section, and do not have a fragipan. Cahaba soils, which are on stream terraces, have a Bt horizon in hue 5YR to 10R, have a fine-loamy control section, but do not have a fragipan. Quitman soils, which are on stream terraces and slightly lower positions, have mottles of chroma 2 in the upper part of the Bt horizon, have a fine-loamy control section, but do not have a fragipan.

Typical pedon of Prentiss fine sandy loam, 0 to 2 percent slopes, in pasture 1/4 mile east of Jeff Davis Academy and 150 feet south of road, SW1/4SE1/4 sec. 28, T. 6 N., R. 17 E.

Ap—0 to 6 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; friable; many fine roots; medium acid; clear smooth boundary.

B1—6 to 10 inches; yellowish brown (10YR 5/4) sandy loam; weak medium subangular structure; friable; sand grains coated and bridged with clay; root channels filled with material from above; strongly acid; gradual wavy boundary.

B21—10 to 17 inches; yellowish brown (10YR 5/8) loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; many fine pores; few roots; strongly acid; gradual wavy boundary.

B22—17 to 27 inches; yellowish brown (10YR 5/6) loam; common medium faint brownish yellow (10YR 6/6) and few medium faint brown (10YR 5/3) mottles; weak medium subangular blocky structure; friable; few thin patchy clay films on faces of peds; sand grains coated and bridged with clay; few pockets of uncoated sand grains; many fine pores; strongly acid; gradual wavy boundary.

Bx1—27 to 40 inches; mottled yellowish brown (10YR 5/8) dark yellowish brown (10YR 4/4), and light brownish gray (10YR 6/2) loam; weak coarse prismatic structure; friable, compact and brittle in more than 60 percent of the mass; many voids; gray seams between prisms ranging from 1/2 to 1 inch wide; very strongly acid; gradual wavy boundary.

Bx2—40 to 60 inches mottled brownish yellowish (10YR 6/8), light brownish gray (10YR 6/2), red (2.5YR

4/6), and yellowish brown (10YR 5/4) sandy clay loam; weak coarse prismatic structure; firm, compact and brittle in more than 65 percent of the mass; gray seams between prisms; clay films on faces of prisms; many voids; very strongly acid.

Solum thickness is 60 inches or more. Reaction is very strongly acid or strongly acid throughout, except where the surface layer has been limed.

The Ap horizon is grayish brown, brown, yellowish brown, or dark brown.

The B horizon is pale brown, light yellowish brown, or yellowish brown. Texture is loam, fine sandy loam, or sandy loam.

The Bx horizon has matrix colors similar to those of the B horizon or is mottled in shades of yellow, brown, gray, and red. Texture is loam, sandy loam, fine sandy loam, or sandy clay loam. Clay content, by weighted average, above the Bx horizon is 12 to 18 percent.

Quitman series

The Quitman series consists of deep, somewhat poorly drained soils that formed in loamy material on stream terraces. Slopes range from 0 to 2 percent. The soils of the Quitman series are fine-loamy, siliceous, thermic Aquic Paleudults.

Quitman soils are associated with Daleville, Kirkville, Prentiss, and Vimville soils. Daleville soils, which are on stream terraces, have a gleyed argillic horizon. Kirkville soils, which are on flood plains, have a coarse-loamy control section but do not have an argillic horizon. Prentiss soils, which are on higher lying stream terraces, have a coarse-loamy control section and fragipan. Vimville soils, which are on lower lying terraces, have a gleyed argillic horizon that has tongues of albic material in the upper part of the Bt horizon.

Typical pedon of Quitman loam, 0 to 2 percent slopes, in field 2 1/2 miles west of Russell and 200 feet north of U.S. Highway 80, SE1/4NW1/4 sec. 2, T. 6 N., R. 16 E.

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) loam; weak fine granular structure; friable; common fine and medium roots; strongly acid; abrupt smooth boundary.

B21t—8 to 18 inches; light olive brown (2.5Y 5/4) loam; common medium faint yellowish brown (10YR 5/6) and many medium distinct light brownish gray (10YR 6/2) mottles; weak medium subangular blocky structure; friable; few fine roots; few clay films on faces of peds; sand grains coated and bridged with clay; very strongly acid; clear smooth boundary.

B22t—18 to 40 inches; mottled gray (10YR 6/1) yellowish brown (10YR 5/6), and light yellowish brown (10YR 6/4) clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable, slightly compact and brittle; gray streaks of fine sandy loam between prisms; few clay films on faces of peds; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

B23t—40 to 65 inches; mottled gray (10YR 6/1), strong brown (7.5YR 5/6), and yellowish brown (10YR 5/6) sandy clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; firm, slightly compact and brittle; few brown concretions; few voids; few patchy clay films on faces of peds; sand grains coated and bridged with clay; very strongly acid.

Solum thickness is 60 inches or more. Reaction is very strongly acid or strongly acid throughout, except where the surface layer has been limed.

The Ap or A2 horizon is dark grayish brown, grayish brown, light yellowish brown, or brown.

The B21t is strong brown, yellowish brown, light yellowish brown, light olive brown and has mottles of chroma 2 or less. Texture is fine sandy loam, loam, or clay loam.

The B22t and B23t horizons have colors similar to those of the B21t horizon or are mottled in shades of gray, yellow, and brown. The lower part of the Bt horizon is slightly compact and brittle. Texture is sandy clay loam or loam. Clay content, by weighted average, in the upper 20 inches of the B horizon is 18 to 32 percent. In some places, there are brown or black concretions.

Ruston series

The Ruston series consists of deep, well drained soils that formed in loamy material on uplands. Slopes range from 2 to 8 percent. The soils of the Ruston series are fine-loamy, siliceous, thermic Typic Paleudults.

Ruston soils are associated with McLaurin, Ora, and Smithdale soils. McLaurin soils, which are on ridges, have coarse-loamy control sections. Ora soils, which are on ridgetops, have a fragipan. Smithdale soils, which are on side slopes of ridges, do not have a bisequel profile.

Typical pedon of Ruston fine sandy loam, 2 to 5 percent slopes, in a cultivated field 3/4 mile north of Clark County line on U.S. Highway 45, and 3/4 mile west, NE1/4NE1/4 sec. 36, T. 5 N., R. 15 E.

Ap—0 to 7 inches; yellowish brown (10YR 5/4) fine sandy loam; weak fine granular structure; friable; medium acid; clear smooth boundary.

B21t—7 to 18 inches; yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few patchy clay films on faces of peds; sand grains coated and bridged with clay; medium acid; clear smooth boundary.

B22t—18 to 35 inches; red (2.5YR 4/6) loam; weak medium subangular blocky structure; friable; few patchy clay films on faces of peds; sand grains coated and bridged with clay; very strongly acid; gradual smooth boundary.

B23t—35 to 40 inches; red (2.5YR 4/6) loam; weak medium subangular blocky structure; friable; few

pockets of light brown (7.5YR 6/4) uncoated sand grains about 1/4 inch in diameter; few patchy clay films on faces of peds; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

B&A'2—40 to 60 inches; red (10R 4/6) sandy loam (B); weak medium subangular blocky structure; friable; pockets of light brown (7.5YR 6/4) (A'2) uncoated sand grains about 1/4 to 1/2 inch in diameter that make up approximately 20 percent of the horizon; few thin patchy clay films on faces of peds; sand grains coated and bridged with clay; very strongly acid; clear smooth boundary.

B'2t—60 to 80 inches; red (2.5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few pockets of light brown (7.5YR 6/4) uncoated sand grains; few patchy clay films on faces of peds; sand grains coated and bridged with clay; very strongly acid.

Solum thickness is 60 inches or more. Reaction ranges from very strongly acid to strongly acid throughout, except where the surface layer has been limed.

The A horizon is brown, dark brown, grayish brown, yellowish brown, dark grayish brown, or light yellowish brown.

The Bt horizon is red or yellowish red and has a few pockets of uncoated sand grains in the lower part. Texture is loam or sandy clay loam. Clay content, by weighted average, in the upper 20 inches of the Bt horizon is 18 to 30 percent. The B&A'2 horizon is red and has light brown mottles or is mottled in shades of red and brown. The brown mottles are somewhat brittle. Texture is sandy loam or fine sandy loam. The B'2t horizon is red or yellowish red. Texture is sandy loam, loam, sandy clay loam, or clay loam. In some places, the solum is up to 15 percent, by volume, ironstone fragments or quartz gravel.

Savannah series

The Savannah series consists of deep, moderately well drained soils that have a fragipan. They formed in loamy material on uplands. Slopes range from 0 to 8 percent. The soils of the Savannah series are fine-loamy, siliceous, thermic Typic Fragiudults.

Savannah soils are associated with Ora and Sweatman soils. Ora soils, which are on ridges, have a Bt horizon that has hue of 5YR or redder. Sweatman soils, which are on ridges and side slopes, have a clayey control section but do not have a fragipan.

Typical pedon of Savannah fine sandy loam, 2 to 5 percent slopes, in pasture 0.5 mile west of Russell, 0.2 mile south of U.S. Highway 80, and 100 feet east of county road, SW1/4SE1/4 sec. 31, T. 7 N., R. 17 E.

Ap—0 to 7 inches; brown (10YR 5/3) fine sandy loam; weak fine granular structure; friable; common fine roots; medium acid; clear smooth boundary.

B21t—7 to 18 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; few fine roots; common clay films on faces of peds; sand grains coated and bridged with clay; strongly acid; gradual wavy boundary.

B22t—18 to 25 inches; yellowish brown (10YR 5/6) loam; few fine distinct pale brown (10YR 6/3) mottles; moderate medium subangular blocky structure; friable; few fine roots; patchy clay films on faces of peds; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

Bx1—25 to 32 inches; yellowish brown (10YR 5/4) loam; few fine distinct pale brown (10YR 6/3) and light brownish gray (10YR 6/2) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle in about 65 percent of the mass; few fine roots; few voids; patchy clay films on faces of peds and in cracks; narrow seams of pale brown (10YR 6/3) between prisms; sand grains coated and bridged with clay; very strongly acid; gradual wavy boundary.

Bx2—32 to 40 inches; yellowish brown (10YR 5/6) sandy clay loam; many medium prominent red (2.5YR 4/6) and many medium distinct light brownish gray (10YR 6/2) and pale brown (10YR 6/3) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, compact and brittle in about 65 percent of the mass; many voids; continuous clay films on faces of peds; seams of pale brown (10YR 6/3) between prisms; very strongly acid; gradual wavy boundary.

Bx3—40 to 65 inches; mottled yellowish brown (10YR 5/6), light brownish gray (10YR 6/2), pale brown (10YR 6/3), and red (2.5YR 4/6) sandy clay loam; weak coarse prismatic structure parting to moderate medium subangular blocky and angular blocky; firm, compact and brittle in about 65 percent of the mass; slightly plastic; many voids; patchy clay films on faces of peds; seams of gray (10YR 6/1) between prisms; sand grains coated and bridged with clay; very strongly acid.

Solum thickness is 60 inches or more. Depth to the fragipan ranges from 18 to 36 inches. Reaction is very strongly acid or strongly acid throughout, except where the surface layer has been limed.

The A horizon is brown, yellowish brown, dark grayish brown, or pale brown.

The Bt horizon is a yellowish brown or strong brown. Texture is loam, clay loam, or sandy clay loam. Clay content, by weighted average, in the upper 20 inches of the B horizon is 20 to 35 percent.

The Bx horizon has a yellowish brown matrix mottled in shades of brown and gray or is mottled in shades of yellow, brown, and gray. Texture is sandy loam, loam, clay loam, or sandy clay loam.

Smithdale series

The Smithdale series consists of deep, well drained soils that formed in loamy material on uplands. Slopes range from 8 to 40 percent. The soils of the Smithdale series are fine-loamy, siliceous, thermic Typic Paleudults.

Smithdale soils are associated with Arundel, Lucy, Ruston, Sweatman, and Williamsville soils. Arundel soils, which are on steep upland side slopes and narrow sloping ridgetops, have a clayey control section and overlie sandstone, siltstone, or buhrstone. Lucy soils, which are on ridges, have a sandy epipedon 20 inches or more in thickness. Ruston soils, which are on ridges, have a bisequel profile. Sweatman soils, which are on side slopes and ridgetops, have a clayey control section and overlie stratified softly weathered shale and loamy material at a depth from 20 to 40 inches. Williamsville soils, which are on ridgetops and side slopes, have a clayey control section.

Typical pedon of Smithdale fine sandy loam, in an area of Lucy-Smithdale association, hilly, in a wooded area about 3/4 mile northwest of Wanita Lake on Point Road and 20 feet east of road, NE1/4NW1/4 sec. 29, T. 5 N., R. 14 E.

A1—0 to 7 inches; dark brown (10YR 4/3) fine sandy loam; weak medium granular structure; very friable; many fine roots; strongly acid; clear smooth boundary.

A2—7 to 10 inches; yellowish brown (10YR 5/4) fine sandy loam; weak medium granular structure; very friable; few fine roots; strongly acid; gradual smooth boundary.

B21t—10 to 21 inches; red (2.5YR 4/6) clay loam; few medium prominent light yellowish brown mottles; moderate medium subangular blocky structure; friable; sand grains coated and bridged with clay; few thin patchy clay films on faces of peds; strongly acid; gradual smooth boundary.

B22t—21 to 37 inches; red (2.5YR 4/8) clay loam; moderate medium subangular blocky structure; friable; few patchy clay films on faces of peds; sand grains coated and bridged with clay; strongly acid; gradual smooth boundary.

B23t—37 to 54 inches; red (2.5YR 4/6) loam; weak medium subangular blocky structure; friable; sand grains coated and bridged with clay; strongly acid; clear smooth boundary.

B24t—54 to 75 inches; red (2.5YR 4/8) sandy loam; weak medium subangular blocky structure; very friable; sand grains coated and bridged with clay; few medium pockets of uncoated sand grains; very strongly acid.

Solum thickness is 60 inches or more. Reaction is very strongly acid or strongly acid throughout, except where the surface layer has been limed.

The A1 horizon is dark brown, dark gray, or dark grayish brown. The Ap or A2 horizon is yellowish brown, dark brown, or light yellowish brown. The A2 horizon is fine sandy loam or sandy loam.

The B21t, B22t, and B23t horizons are red or yellowish red. Texture is sandy clay loam, clay loam, or loam. Clay content, by weighted average, in the upper 20 inches of the Bt horizon is 18 to 33 percent clay. The B24t horizon is similar in color to that of the upper Bt horizon. It has pockets of uncoated sand grains. Texture is loam or sandy loam.

Sweatman series

The Sweatman series consists of deep, well drained soils that formed in stratified loamy marine deposits consisting of loamy sediments and shaly clay on uplands. Slopes range from 2 to 35 percent. The soils of the Sweatman series are clayey, mixed, thermic Typic Hapludults.

Sweatman soils are associated with Arundel, Lauderdale, Savannah, and Smithdale soils. Arundel and Lauderdale soils, which are on side slopes and narrow, winding ridges that are underlain by stratified sandstone, siltstone, and buhrstone. Lauderdale soils have a solum less than 20 inches in thickness and Arundel soils have a solum ranging from 20 to 40 inches in thickness. Savannah soils, which are on fairly broad ridges, have a fine-loamy control section and a fragipan. Smithdale soils, which are on side slopes, have a fine-loamy control section, and formed in thick bedded loamy marine deposits.

Typical pedon of Sweatman fine sandy loam, 2 to 5 percent slopes, eroded, in woods 1/4 mile west of Northeast High School and 20 feet north of county road, SE1/4SW1/4 sec. 3, T. 7 N., R. 16 E.

Ap1—0 to 2 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak fine granular structure; very friable; many fine roots; medium acid; abrupt smooth boundary.

Ap2—2 to 5 inches; brown (7.5YR 5/4) fine sandy loam; moderate medium granular and weak subangular blocky structure; friable; few fine roots; strongly acid; abrupt smooth boundary.

B21t—5 to 16 inches; red (2.5YR 4/6) clay; moderate medium subangular structure and angular blocky; firm, plastic and sticky; few fine and medium roots; patchy clay films on faces of peds; very strongly acid; clear smooth boundary.

B22t—16 to 23 inches; red (2.5YR 4/6) clay; common medium prominent light yellowish brown (10YR 6/4) mottles; moderate medium subangular structure and angular blocky; firm, plastic and sticky; few fine roots; patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

B3—23 to 36 inches; strong brown (7.5YR 5/6) clay; many medium distinct red (2.5YR 4/6) and common medium distinct brownish yellow (10YR 6/8) mottles; moderate fine and medium subangular structure and

angular blocky; firm, plastic and sticky; few medium roots; few fine distinct light gray shale fragments; few flakes of mica; patchy clay films on faces of peds; very strongly acid; gradual smooth boundary.

C—36 to 65 inches; stratified red (2.5YR 4/6) and strong brown (7.5YR 5/8) fine sandy loam and clay loam, light brownish gray (10YR 6/2) and pale brown (10YR 6/3) weathered shale; massive; firm; few flakes of mica; very strongly acid.

Solum thickness ranges from 20 to 40 inches. Reaction is very strongly acid or strongly acid throughout, except where the surface layer has been limed.

The A horizon is very dark grayish brown, dark grayish brown, grayish brown, or brown.

The Bt horizon is red or yellowish red. Few to many brownish mottles are in the lower part of the horizon. Texture is clay, silty clay, or silty clay loam. Clay content, by weighted average, in the upper 20 inches of the Bt horizon is 35 to 50 percent.

The B3 horizon is red, yellowish red, or strong brown and has mottles, or it is mottled in shades of red, yellow, and brown and has few to many fragments of gray weathered shale. Texture is sandy loam, loam, clay loam, or silty clay.

The C horizon is mottled in shades of red, gray, and brown amd has stratified fine sandy loam, sandy clay loam, loam, and weathered shale and mica.

Vimville series

The Vimville series consists of deep, poorly drained soils formed in loamy material on stream terraces. Slopes range from 0 to 2 percent. The soils of the Vimville series are fine-loamy, siliceous, thermic Typic Glossaqualfs.

Vimville soils are associated with Bonn Variant, Daleville, and Quitman soils. Bonn Variant soils, which are in similar low lying areas, have a natric horizon. Daleville soils, which are in slightly higher positions, have less than 35 percent base saturation. Quitman soils, which are in slightly higher positions on terraces, have less than 35 percent base saturation and are not gleyed in the upper Bt horizon.

Typical profile of Vimville loam, occasionally flooded, in woods 1 1/4 miles south of the entrance to Capehart Housing Project and 150 feet east of county road, NE1/4SE1/4 sec. 23, T. 8 N., R. 16 E.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) loam; weak fine granular structure; friable; common fine roots; strongly acid; clear smooth boundary.

A2g—4 to 12 inches; gray (10YR 6/1) loam; many medium distinct yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots; strongly acid; clear smooth boundary.

B&A—12 to 22 inches; gray (10YR 6/1) clay loam (B); many medium distinct yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, plastic; few fine roots; few patchy clay films on faces of peds; common tongues and pockets of (10YR 6/1) gray loam (A) between and within prisms; neutral; gradual irregular boundary.

B21tg—22 to 34 inches; gray (10YR 5/1) clay loam; many medium distinct yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, plastic; few patchy clay films on faces of peds; few fine roots; tongues of gray loam between prisms; neutral; gradual irregular boundary.

B22tg—34 to 65 inches; gray (10YR 5/1) clay loam; many medium distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm, plastic; few tongues of gray loam between prisms; neutral.

Solum thickness is 60 inches or more. Reaction of the A horizon ranges from very strongly acid to slightly acid. Reaction of the upper part of the Bt horizon ranges from medium acid to neutral, and reaction of the lower Bt horizon ranges from medium acid to mildly alkaline.

The A1 horizon is dark grayish brown or dark gray. The A2 horizon is dark grayish brown, grayish brown, gray, or light brownish gray.

The Btg horizon is gray, light gray, light brownish gray, or grayish brown. It has few to many mottles in shades of brown, red, gray, and yellow. Texture is clay loam, loam, or sandy clay loam. Clay content, by weighted average, in the upper 20 inches of the B horizon is 18 to 35 percent.

Williamsville series

The Williamsville series consists of deep, well drained soils that formed in clayey material on uplands. Slopes range from 8 to 40 percent. The soils of the Williamsville series are clayey, mixed, thermic Typic Hapludults.

Williamsville soils are associated with Arundel and Smithdale soils. Arundel soils, which are on steep upland side slopes and narrow ridgetops, are underlain with sandstone, siltstone, or buhrstone. Smithdale soils, which are on ridges and side slopes, have a fine-loamy control section.

Typical profile of Williamsville sandy loam in an area of Arundel-Smithdale-Williamsville association, hilly, in a wooded area 0.4 mile east of Providence Church, 300 feet south on woods road, and 90 feet west of road, NE1/4SW1/4 sec. 18, T. 7 N., R. 14 E.

A1—0 to 4 inches; reddish brown (5YR 4/4) sandy loam; weak medium granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

B21t—4 to 14 inches; dark red (2.5YR 3/6) sandy clay; moderate medium angular structure and subangular

blocky; firm; few fine and medium roots; continuous clay films on faces of peds; few grains of glauconitic material; strongly acid; clear smooth boundary.

B22t—14 to 38 inches; dark red (2.5YR 3/6) sandy clay; weak and moderate, fine and medium subangular blocky structure; firm; patchy clay films on faces of peds; few fine masses of greensand; strongly acid; gradual smooth boundary.

B23t—38 to 52 inches; dark red (2.5YR 3/6) sandy clay loam; weak fine and medium subangular structure; friable; patchy clay films on faces of peds; sand grains coated and bridged with clay; few medium masses of greensand; few medium soft ironstone fragments; strongly acid; gradual smooth boundary.

B3—52 to 62 inches; dark red (2.5YR 3/6) loam; fine and medium subangular blocky structure; friable; sand grains coated and bridged with clay; few medium masses of greensand; strongly acid.

Solum thickness is 60 to about 80 inches. Reaction is very strongly acid or strongly acid throughout.

The A horizon is reddish brown, yellowish red, dark brown, or dark grayish brown.

The B21t, B22t, and B23t horizons are dark red, red, or yellowish red, and have masses of greensand. Texture is clay, sandy clay, sandy clay loam, or clay loam.

The B3 horizon is dark red, red, or yellowish red, and in places this horizon has masses of greensand. The pockets are not present in all horizons or pedons. Texture is sandy clay loam, loam, or sandy loam.

formation of the soils

This section discusses the major factors and processes that have affected the formation and morphology of the soils of Lauderdale County. Soil, as used in this discussion, is a natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soils are formed through the interaction of five major factors: climate, plant and animal life, parent material, relief, and time. The relative influence of each factor varies from place to place, and in some places one factor dominates in the formation of a soil and determines most of its properties. Local variation in soils in Lauderdale County is caused mainly by differences in parent material, relief, and time as well as the effects of man.

In the urban areas of Meridian the influence of man on soils has been great. For example, with bulldozers and other earthmoving equipment, man has altered and modified soils.

climate

Lauderdale County has a moist temperate climate that is characteristic of the southeastern United States. Summers are hot, and winters are cool and fairly short. Annual precipitation is about 52 inches. Annual snowfall is less than 2 inches. Average annual temperature is about 64°.

The generally moist climate has caused strong weathering of the soils. Almost all of the soils are acid. Weathering and leaching have left the natural level of plant nutrients low in most of the soils.

plant and animal life

All living organisms, including vegetation, bacteria and fungi, and animals, are important to soil formation. Vegetation generally supplies organic matter that decomposes and gives a darker color to soil surface horizons. Bacteria and fungi are responsible for decomposing vegetation and returning nutrients to the soil. Many of the organic reactions and processes of the bacteria and fungi release materials that affect the soil-forming processes. Burrowing animals, earthworms, ants, cicada, and other insects mix soils and affect soil structure as well as make the soils more open and porous for movement of air and water.

Man also affects soil structure and makes soils more porous in places by tillage and management practices. In other instances, however, man compacts the soils and makes them more dense by foot and vehicle traffic. Man's intensive use and disturbance of some soils has caused accelerated soil erosion losses, often accompanied by increased deposition on flood plains and in depressional areas. Man has also altered many soils chemically through the application of limestone and fertilizer, which make the soils more productive for most plants. Man has introduced plants and animals not normally found in this area, and these will eventually affect the soil.

parent material

Parent material is material from which soils form. It influences the mineral and chemical composition of the soil and, to a large extent, the rate at which soil formation takes place. Lauderdale County lies entirely in the Gulf Coastal Plain physiographic region and almost entirely within the topographic division known as the North Central Hills.

Soils of the uplands formed in residual coastal plain sediments, and soils of the low terraces and flood plains formed in recent materials washed from the uplands. Except for the recent alluvium, the outcropping formations are all Eocene in age; for the most part they consist of unconsolidated or poorly consolidated sands, sandy clays and shales, and individual beds vary greatly from place to place (*5*).

relief

Relief, or shape of the landscape, influences soil formation. It controls surface drainage and affects the percolation of water through the soil. Relief often affects the depth of soil, the plant and animal life, and some of the soil-forming processes. Soils on steeper slopes are more subject to erosion because of concentrated, rapid runoff. Soils in depressional areas are usually wet; soils on higher convex surfaces are better drained. Differences in topography cause free water to leave the well drained soils and to accumulate in the poorly drained soils.

The relief in Lauderdale County ranges from nearly level to steep. Slopes range from 0 to almost 50 percent.

time

A long period of time is required for soil formation. The ages of different soils account for most of the soil differences that are not attributed to other factors of soil formation. Soils along the streams are the youngest in the county. Older soils have a greater degree of horizon differentiation than the young soils. The soils on the uplands are the oldest in the county. Most of the soils that formed on the smoother parts of the uplands and on older stream terraces have a well defined soil profile. These soils have an A horizon and a B horizon that has an accumulation of silicate clay.

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glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly such soil formed in recent alluvium or on steep rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher), or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Medium	6 to 9
High	9 to 12
Very high	More than 12

Base saturation. The degree to which material having cation exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation exchange capacity.

Bedding planes. Fine stratifications, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediments.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Bottom land. The normal flood plain of a stream, subject to flooding.

Broad-base terrace. A ridge-type terrace built to control erosion by diverting runoff along the contour at a nonscouring velocity. The terrace is 10 to 20 inches high and 15 to 30 feet wide and has gently sloping sides, a rounded crown, and a dish-shaped channel along the upper side. It may be nearly level or have a grade toward one or both ends.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.

Chiseling. Tillage with an implement having one or more soil-penetrating points that loosen the subsoil and bring clods to the surface. A form of emergency tillage to control soil blowing.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15.2 to 38.1 centimeters (6 to 15 inches) long.

Coarse textured soil. Sand or loamy sand.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control measures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is

not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or arresting grazing for a prescribed period.

Dendritic drainage pattern. Irregular branching (treelike) in all directions with tributaries joining the main stream at all angles.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor

drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.
Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.
Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.

Excess alkali (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity.*

Fine textured soil. Sandy clay, silty clay, and clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Graded stripcropping. Growing crops in strips that grade toward a protected waterway.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual.* The major horizons of mineral soil are as follows:
O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.
A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.
B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, invader plants follow disturbance of the surface.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Moderately coarse textured soil. Sandy loam and fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, and silty clay loam.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan.*

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to

permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.20 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor filter (in tables). Because of rapid permeability or an impermeable layer near the surface, the soil may not adequately filter effluent from a waste disposal system.

Poor outlets (in tables). Refers to areas where surface or subsurface drainage outlets are difficult or expensive to install.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Rill. A steep sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rippable. Bedrock or hardpan can be excavated using a single-tooth ripping attachment mounted on a tractor with a 200-300 draw bar horsepower rating.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-size particles.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and runoff water.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special practices are required to insure satisfactory performance of the soil for a specific use.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 mm in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows:

	Millimeters
Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stratified. Formed or lying in beds, layers, or strata.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, are in soils in

extremely small amounts. They are essential to plant growth.

Unstable fill (in tables). Risk of caving or sloughing on banks of fill material.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Variant, soil. A soil having properties sufficiently different from those of other known soils to justify a new series name, but occurring in such a limited geographic area that creation of a new series is not justified.

Water bar. A water control structure consisting of a long, low mound of earthy material built across logging roads or skid trails to divert water off the road into undisturbed areas. Water bars reduce erosion damage along the roadway by keeping water from accumulating and reaching high velocities.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Recorded in the period 1951-76 at Meridian, Miss.]

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days[1]	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January	57.8	34.7	46.3	78	11	96	4.69	2.76	6.40	7	.2
February	61.7	37.1	49.5	80	17	123	4.59	2.40	6.37	7	.3
March	68.8	43.2	56.0	86	24	242	6.22	3.21	8.67	8	.1
April	77.9	51.5	64.7	89	31	441	5.00	2.35	7.16	6	.0
May	84.4	59.2	71.8	95	40	676	3.91	1.36	5.95	6	.0
June	90.3	66.4	78.4	100	51	852	3.61	1.86	5.04	6	.0
July	92.3	69.8	81.0	100	60	961	5.20	2.23	7.60	8	.0
August	91.9	68.8	80.4	99	57	942	3.54	1.70	5.03	6	.0
September	86.9	63.7	75.3	97	45	759	3.39	1.51	4.91	6	.0
October	77.9	50.3	64.1	92	29	442	2.35	.48	3.84	3	.0
November	67.0	40.4	53.7	85	21	154	3.24	1.47	4.67	6	.0
December	59.9	36.2	48.1	80	14	105	6.10	3.34	8.35	8	.7
Yearly:											
Average	76.4	51.8	64.1	---	---	---	---	---	---	---	---
Extreme	---	---	---	102	11	---	---	---	---	---	---
Total	---	---	---	---	---	5,793	51.84	41.44	61.67	77	1.3

[1] A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50° F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Recorded in the period 1951-76 at Meridian, Miss.]

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 20	March 24	April 14
2 years in 10 later than--	March 8	March 17	April 8
5 years in 10 later than--	February 15	March 5	March 28
First freezing temperature in fall:			
1 year in 10 earlier than--	November 6	October 24	October 20
2 years in 10 earlier than--	November 13	November 1	October 25
5 years in 10 earlier than--	November 27	November 15	November 3

TABLE 3.--GROWING SEASON

[Recorded in the period 1951-76 at Meridian, Miss.]

Probability	Daily minimum temperature during growing season		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	249	224	197
8 years in 10	261	234	205
5 years in 10	285	254	220
2 years in 10	309	273	234
1 year in 10	321	283	242

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
Aa	Annemaine fine sandy loam	1,695	0.4
AbD	Arundel-Sweatman complex, 8 to 12 percent slopes	465	0.1
AL	Arundel-Lauderdale association, hilly	8,820	1.9
AR	Arundel-Smithdale-Williamsville association, hilly	6,145	1.3
AS	Arundel-Sweatman-Smithdale association, hilly	48,000	10.4
Ba	Bigbee loamy sand, occasionally flooded	655	0.1
BB	Bigbee-Bibb association, frequently flooded	4,705	1.0
Bo	Bonn Variant loam, occasionally flooded	770	0.2
CaA	Cahaba fine sandy loam, 0 to 2 percent slopes	1,045	0.2
Da	Daleville loam, occasionally flooded	9,230	2.0
DJ	Daleville-Jena association, frequently flooded	12,000	2.6
EaB	Eustis loamy sand, 0 to 5 percent slopes	635	0.1
Ja	Jena fine sandy loam, frequently flooded	8,140	1.8
Ju	Jena-Urban land complex, frequently flooded	435	0.1
Ka	Kirkville fine sandy loam, occasionally flooded	11,545	2.5
Kb	Kirkville-Bibb complex, frequently flooded	7,260	1.6
KK	Kirkville-Bibb association, frequently flooded	8,620	1.9
LaB	Lakeland sand, 0 to 5 percent slopes	560	0.1
LH	Lucy-Heidel association, rolling	11,695	2.5
LS	Lucy-Smithdale association, hilly	11,170	2.4
MaB	McLaurin loamy sand, 2 to 5 percent slopes	2,945	0.6
MaC	McLaurin loamy sand, 5 to 8 percent slopes	1,115	0.2
OrB	Ora fine sandy loam, 2 to 5 percent slopes	10,345	2.2
OrC	Ora fine sandy loam, 5 to 8 percent slopes	12,830	2.8
OuD	Ora-Urban land complex, 5 to 12 percent slopes	760	0.2
Pa	Pits	865	0.2
PtA	Prentiss fine sandy loam, 0 to 2 percent slopes	5,485	1.2
PuA	Prentiss-Urban land complex, 0 to 2 percent slopes	790	0.2
QaA	Quitman loam, 0 to 2 percent slopes	18,900	4.1
RuB	Ruston fine sandy loam, 2 to 5 percent slopes	18,900	4.1
RuC	Ruston fine sandy loam, 5 to 8 percent slopes	3,095	0.7
SaA	Savannah fine sandy loam, 0 to 2 percent slopes	2,500	0.5
SaB	Savannah fine sandy loam, 2 to 5 percent slopes	7,620	1.6
SaC	Savannah fine sandy loam, 5 to 8 percent slopes	900	0.2
SbB	Savannah-Urban land complex, 0 to 5 percent slopes	1,010	0.2
ScD	Smithdale fine sandy loam, 8 to 15 percent slopes	3,285	0.7
SdE	Smithdale-Lucy complex, 15 to 25 percent slopes	4,410	1.0
SmB2	Sweatman fine sandy loam, 2 to 5 percent slopes, eroded	8,585	1.9
SmC2	Sweatman fine sandy loam, 5 to 8 percent slopes, eroded	7,280	1.6
SmD2	Sweatman fine sandy loam, 8 to 15 percent slopes, eroded	26,610	5.8
SmE2	Sweatman fine sandy loam, 15 to 35 percent slopes, eroded	3,735	0.8
SnE	Sweatman-Smithdale complex, 5 to 25 percent slopes	20,720	4.5
SuD	Sweatman-Urban land complex, 5 to 15 percent slopes	2,260	0.5
SuE	Sweatman-Urban land complex, 15 to 25 percent slopes	2,580	0.6
SW	Sweatman association, hilly	71,680	15.5
SX	Sweatman-Smithdale association, hilly	56,455	12.2
Ur	Urban land	3,695	0.8
Va	Vimville loam, occasionally flooded	1,280	0.3
	Water	7,215	1.6
	Total	461,440	100.0

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Corn	Soybeans	Bahiagrass	Improved bermudagrass	Tall fescue
	Bu	Bu	AUM*	AUM*	AUM*
Aa---------- Annemaine	100	40	10.0	10.0	9.0
AbD---------- Arundel-Sweatman	---	---	5.5	---	---
AL:**					
Arundel----------	---	---	---	---	---
Lauderdale----------	---	---	---	---	---
AR:**					
Arundel----------	---	---	---	---	---
Smithdale----------	---	---	6.0	6.5	---
Williamsville----------	---	---	5.0	5.5	---
AS:**					
Arundel----------	---	---	---	---	---
Sweatman----------	---	---	5.0	5.0	---
Smithdale----------	---	---	7.0	7.5	---
Ba---------- Bigbee	50	25	7.5	7.5	---
BB:**					
Bigbee----------	50	---	7.5	7.5	---
Bibb----------	---	---	---	---	8.0
Bo---------- Bonn Variant	---	---	4.0	---	---
CaA---------- Cahaba	90	35	8.5	10.0	---
Da---------- Daleville	---	25	8.0	8.0	8.0
DJ:**					
Daleville----------	---	---	7.0	6.0	4.0
Jena----------	---	---	7.0	7.0	---
EaB---------- Eustis	60	25	6.5	7.0	---
Ja---------- Jena	---	---	7.0	7.0	---
Ju---------- Jena-Urban land	---	---	---	---	---
Ka---------- Kirkville	95	40	10.0	10.0	10.5
Kb---------- Kirkville-Bibb	---	---	7.0	7.0	8.0
KK:**					
Kirkville----------	---	---	7.5	7.5	8.0

See footnotes at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Corn	Soybeans	Bahiagrass	Improved bermudagrass	Tall fescue
	Bu	Bu	AUM*	AUM*	AUM*
KK:**					
Bibb	---	---	5.5	5.5	8.0
LaB	---	---	5.0	5.0	---
Lakeland					
LH:**					
Lucy	---	---	5.0	5.0	---
Heidel	---	---	5.0	5.0	---
LS:**					
Lucy	---	---	5.0	5.0	---
Smithdale	---	---	5.0	5.0	---
MaB	75	25	8.0	10.0	---
McLaurin					
MaC	70	25	7.0	8.5	---
McLaurin					
OrB	80	35	9.0	8.5	8.0
Ora					
OrC	70	30	8.5	8.0	7.5
Ora					
OuD	---	---	---	---	---
Ora-Urban land					
PtA	85	30	9.0	9.0	8.0
Prentiss					
PuA	---	---	---	---	---
Prentiss-Urban land					
QaA	80	30	10.0	10.0	9.0
Quitman					
RuB, RuC	65	25	9.5	12.0	---
Ruston					
SaA	80	35	9.0	8.5	8.0
Savannah					
SaB	75	35	9.0	8.5	8.0
Savannah					
SaC	70	30	9.0	8.0	7.5
Savannah					
SbB	---	---	---	---	---
Savannah-Urban land					
ScD	50	25	8.0	9.0	---
Smithdale					
SdE	---	---	7.0	7.0	---
Smithdale-Lucy					
SmB2	50	20	6.5	6.5	---
Sweatman					

See footnotes at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Corn	Soybeans	Bahiagrass	Improved bermudagrass	Tall fescue
	Bu	Bu	AUM*	AUM*	AUM*
SmC2---------- Sweatman	---	---	6.0	6.0	---
SmD2---------- Sweatman	---	---	5.5	5.5	---
SmE2---------- Sweatman	---	---	---	---	---
SnE---------- Sweatman-Smithdale	---	---	5.0	5.0	---
SuD---------- Sweatman-Urban land	---	---	---	---	---
SuE---------- Sweatman-Urban land	---	---	---	---	---
SW**---------- Sweatman	---	---	---	---	---
SX:**					
Sweatman----------	---	---	---	---	---
Smithdale----------	---	---	---	---	---
Va---------- Vimville	---	30	8.5	8.5	8.5

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 6.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Absence of an entry indicates no acreage]

Class	Total acreage	Major management concerns (Subclass)			
		Erosion (e)	Wetness (w)	Soil problem (s)	Climate (c)
		Acres	Acres	Acres	Acres
I	1,045	---	---	---	---
II	62,888	22,345	40,543	---	---
III	61,158	46,565	10,510	4,083	---
IV	11,573	11,013	---	560	---
V	40,002	---	40,002	---	---
VI	52,319	37,387	---	14,932	---
VII	229,542	229,542	---	---	---
VIII	---	---	---	---	---

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that the soil was not rated.]

Map symbol and soil name	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	
Aa---------- Annemaine	3w8	Slight	Moderate	Slight	Moderate	Loblolly pine--------- Shortleaf pine--------- Yellow-poplar--------- Sweetgum---------- American sycamore--- Water oak----------	80 70 90 80 90 ---	Yellow-poplar, loblolly pine, sweetgum, American sycamore.
AbD:*								
Arundel----------	3c2	Slight	Moderate	Moderate	Slight	Loblolly pine--------- Shortleaf pine--------- Longleaf pine---------	70 60	Loblolly pine, shortleaf pine.
Sweatman----------	3c2	Slight	Moderate	Slight	Slight	Loblolly pine--------- Shortleaf pine---------	83 73	Loblolly pine, shortleaf pine.
AL:*								
Arundel----------	3c2	Slight	Moderate	Moderate	Slight	Loblolly pine--------- Shortleaf pine--------- Longleaf pine---------	70 60	Loblolly pine, shortleaf pine.
Lauderdale--------	4d2	Moderate	Severe	Moderate	Slight	Loblolly pine--------- Shortleaf pine---------	70 65	Loblolly pine, shortleaf pine.
AR:*								
Arundel----------	3c2	Slight	Moderate	Moderate	Slight	Loblolly pine--------- Shortleaf pine--------- Longleaf pine---------	70 60	Loblolly pine, shortleaf pine.
Smithdale---------	3o1	Slight	Slight	Slight	Moderate	Loblolly pine--------- Shortleaf pine---------	80 69	Loblolly pine.
Williamsville-----	2o1	Moderate	Moderate	Slight	Slight	Loblolly pine--------- Shortleaf pine--------- Longleaf pine---------	88 80	Loblolly pine.
AS:*								
Arundel----------	3c2	Slight	Moderate	Moderate	Slight	Loblolly pine--------- Shortleaf pine--------- Longleaf pine---------	70 60	Loblolly pine, shortleaf pine.
Sweatman----------	3c2	Slight	Moderate	Slight	Slight	Loblolly pine--------- Shortleaf pine---------	83 73	Loblolly pine, shortleaf pine.
Smithdale---------	3o1	Slight	Slight	Slight	Moderate	Loblolly pine--------- Shortleaf pine---------	80 69	Loblolly pine.
Ba---------- Bigbee	2s8	Slight	Moderate	Moderate	Slight	Loblolly pine--------- Turkey oak---------- Bluejack oak-------- Post oak----------	88	Loblolly pine.
BB:*								
Bigbee----------	2s8	Slight	Moderate	Moderate	Slight	Loblolly pine---------	88	Loblolly pine.
Bibb----------	2w9	Slight	Severe	Severe	Severe	Loblolly pine--------- Sweetgum---------- Water oak----------	90 90 90	Loblolly pine, sweetgum, yellow-poplar.
Bo---------- Bonn Variant	5t2	Slight	Severe	Severe	---------	Water oak---------- Spruce pine---------- Loblolly pine---------	--- ---	Loblolly pine.

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	
CaA---------- Cahaba	2o7	Slight	Slight	Slight	Moderate	Loblolly pine--------- Slash pine---------- Yellow-poplar-------- Sweetgum---------- Southern red oak---- White oak---------- Cherrybark oak------ Longleaf pine-------- Blackgum----------	87 91 --- 90 --- --- --- 72 ---	Loblolly pine, yellow-poplar, sweetgum, American sycamore.
Da---------- Daleville	2w9	Slight	Severe	Severe	Moderate	Loblolly pine--------- Sweetgum---------- Water oak---------- Willow oak----------	95 90 85 80	Green ash, loblolly pine, sweetgum.
DJ:* Daleville----------	2w9	Slight	Severe	Severe	Moderate	Loblolly pine--------- Sweetgum---------- Water oak---------- Willow oak----------	95 90 85 80	Green ash, loblolly pine, sweetgum.
Jena----------	1w9	Slight	Severe	Moderate	---------	Loblolly pine--------- Sweetgum---------- Water oak---------- Southern red oak---- White oak---------- Slash pine----------	100 90 80 --- --- ---	Loblolly pine, American sycamore.
EaB---------- Eustis	3s3	Slight	Moderate	Moderate	Moderate	Loblolly pine--------- Longleaf pine--------	80 65	Loblolly pine. pine.
Ja---------- Jena	1w9	Slight	Severe	Moderate	---------	Loblolly pine--------- Sweetgum---------- Water oak---------- Southern red oak---- White oak----------	100 90 80 --- ---	Loblolly pine, American sycamore.
Ka---------- Kirkville	1w8	Slight	Moderate	Moderate	Moderate	Cherrybark oak------ Loblolly pine-------- Sweetgum---------- Water oak---------- Southern red oak---- White oak----------	100 95 100 100	Cherrybark oak, loblolly pine, sweetgum, yellow-poplar.
Kb,* KK:* Kirkville----------	1w8	Slight	Severe	Severe	Moderate	Cherrybark oak------ Loblolly pine-------- Sweetgum---------- Water oak---------- Southern red oak---- White oak----------	100 95 100 100	Cherrybark oak, loblolly pine, sweetgum, yellow-poplar.
Bibb----------	2w9	Slight	Severe	Severe	Severe	Loblolly pine--------- Sweetgum---------- Water oak----------	90 90 90	Loblolly pine, sweetgum, yellow-poplar.
LaB---------- Lakeland	4s3	Slight	Moderate	Moderate	Slight	Loblolly pine--------- Longleaf pine--------	75 60	Loblolly pine. pine.
LH:* Lucy----------	3s2	Moderate	Moderate	Moderate	Moderate	Longleaf pine-------- Loblolly pine--------	71 84	Longleaf pine, loblolly pine.
Heidel----------	3o1	Slight	Slight	Slight	Slight	Loblolly pine--------- Shortleaf pine------	83 70	Loblolly pine.

See footnote at end of table.

TABLE 7.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns				Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Plant competition	Common trees	Site index	
LS:*								
Lucy	3s2	Moderate	Moderate	Moderate	Moderate	Longleaf pine Loblolly pine	71 84	Longleaf pine, loblolly pine.
Smithdale	3o1	Slight	Slight	Slight	Moderate	Loblolly pine Shortleaf pine	80 69	Loblolly pine.
MaB, MaC McLaurin	3o1	Slight	Slight	Slight	Slight	Loblolly pine Shortleaf pine	83 70	Loblolly pine, shortleaf pine.
OrB, OrC Ora	3o7	Slight	Slight	Slight	Moderate	Loblolly pine Shortleaf pine Sweetgum	83 69 80	Loblolly pine, slash pine.
PtA Prentiss	2o7	Slight	Slight	Slight	Slight	Loblolly pine Shortleaf pine Sweetgum Cherrybark oak White oak	88 79 90 90 80	Loblolly pine.
QaA Quitman	2w8	Slight	Moderate	Slight	Slight	Water oak Loblolly pine Sweetgum	90 92 93	Loblolly pine, sweetgum, American sycamore, yellow-poplar.
RuB, RuC Ruston	3o1	Slight	Slight	Slight	---	Loblolly pine Shortleaf pine	84 75	Loblolly pine.
SaA, SaB, SaC Savannah	3o7	Slight	Slight	Slight	Moderate	Loblolly pine Shortleaf pine Southern red oak Post oak	81 76 75	Loblolly pine.
ScD Smithdale	3o1	Slight	Slight	Slight	Moderate	Loblolly pine Shortleaf pine	80 69	Loblolly pine.
SdE:*								
Smithdale	3o1	Slight	Slight	Slight	Moderate	Loblolly pine Shortleaf pine	80 69	Loblolly pine.
Lucy	3s2	Moderate	Moderate	Moderate	Moderate	Longleaf pine Loblolly pine	71 84	Longleaf pine, loblolly pine.
SmB2, SmC2, SmD2, SmE2 Sweatman	3c2	Slight	Moderate	Slight	Slight	Loblolly pine Shortleaf pine	83 73	Loblolly pine, shortleaf pine.
SnE:*								
Sweatman	3c2	Slight	Moderate	Slight	Slight	Loblolly pine Shortleaf pine	83 73	Loblolly pine, shortleaf pine.
Smithdale	3o1	Slight	Slight	Slight	Moderate	Loblolly pine Shortleaf pine	80 69	Loblolly pine.
SW* Sweatman	3c2	Slight	Moderate	Slight	Slight	Loblolly pine Shortleaf pine	83 73	Loblolly pine, shortleaf pine.
SX:*								
Sweatman	3c2	Slight	Moderate	Slight	Slight	Loblolly pine Shortleaf pine	83 73	Loblolly pine, shortleaf pine.
Smithdale	3o1	Slight	Slight	Slight	Moderate	Loblolly pine Shortleaf pine	80 69	Loblolly pine.
Va Vimville	2w9	Slight	Severe	Severe	Moderate	Loblolly pine Sweetgum Water oak Willow oak	95 90 85 85	Green ash, loblolly pine, sweetgum.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--WOODLAND UNDERSTORY VEGETATION

[Only the soils suitable for production of commercial trees are listed]

Map symbol and soil name	Total production		Characteristic vegetation	Composition
	Kind of year	Dry weight		
		Lb/acre		Pct
Aa---------- Annemaine	Favorable	---	Pinehill bluestem	22
	Normal	1,500	Longleaf uniola	33
	Unfavorable	---	Carpetgrass	28
			Panicum	6
AbD:*				
Arundel----------	Favorable	---	Pinehill bluestem	25
	Normal	800	Elliott bluestem	12
	Unfavorable	---	Panicum	25
			Threeawn	6
Sweatman----------	Favorable	---	Pinehill bluestem	25
	Normal	800	Beaked panicum	31
	Unfavorable	---	Panicum	25
AL:*				
Arundel----------	Favorable	---	Pinehill bluestem	25
	Normal	800	Elliott bluestem	12
	Unfavorable	---	Panicum	25
			Threeawn	6
Lauderdale--------	Favorable	---	Pinehill bluestem	73
	Normal	600	Elliott bluestem	14
	Unfavorable	---	Broom sedge	9
AR:*				
Arundel----------	Favorable	---	Pinehill bluestem	25
	Normal	800	Elliott bluestem	12
	Unfavorable	---	Panicum	25
			Threeawn	6
Smithdale---------	Favorable	---	Longleaf uniola	42
	Normal	950	Pinehill bluestem	21
	Unfavorable	---	Beaked panicum	21
			Panicum	11
Williamsville-----	Favorable	---	Pinehill bluestem	46
	Normal	1,300	Beaked panicum	15
	Unfavorable	---	Panicum	11
			Slender bluestem	15
AS:*				
Arundel----------	Favorable	---	Pinehill bluestem	25
	Normal	800	Elliott bluestem	12
	Unfavorable	---	Panicum	25
			Threeawn	6
Sweatman----------	Favorable	---	Pinehill bluestem	25
	Normal	800	Beaked panicum	31
	Unfavorable	---	Panicum	25
Smithdale---------	Favorable	---	Longleaf uniola	42
	Normal	950	Pinehill bluestem	21
	Unfavorable	---	Beaked panicum	21
			Panicum	11
Ba---------- Bigbee	Favorable	---	Pinehill bluestem	38
	Normal	800	Panicum	13
	Unfavorable	---	Threeawn	13
			Grassleaf goldaster	12
			Pineywoods dropseed	12
BB:*				
Bigbee----------	Favorable	---	Pinehill bluestem	38
	Normal	800	Panicum	13
	Unfavorable	---	Threeawn	13
			Grassleaf goldaster	12
			Pineywoods dropseed	12

See footnote at end of table.

TABLE 8.--WOODLAND UNDERSTORY VEGETATION--Continued

Map symbol and soil name	Total production		Characteristic vegetation	Composition
	Kind of year	Dry weight		
		Lb/acre		Pct
BB:*				
Bibb	Favorable	---	Pinehill bluestem	20
	Normal	2,000	Longleaf uniola	35
	Unfavorable	---	Sledge	10
			Plumegrass	10
Bo	Favorable	---	Pinehill bluestem	35
Bonn Variant	Normal	1,500	Longleaf uniola	20
	Unfavorable	---	Switchcane	20
CaA	Favorable	---	Pinehill bluestem	15
Cahaba	Normal	1,350	Low panicum	7
	Unfavorable	---	Beaked panicum	26
			Longleaf uniola	44
Da	Favorable	---	Pinehill bluestem	25
Daleville	Normal	1,200	Cutover muhly	17
	Unfavorable	---	Longleaf uniola	17
			Beaked panicum	9
DJ:*				
Daleville	Favorable	---	Pinehill bluestem	25
	Normal	1,200	Cutover muhly	17
	Unfavorable	---	Longleaf uniola	17
			Beaked panicum	9
Jena	Favorable	---	Pinehill bluestem	46
	Normal	1,300	Slender bluestem	4
	Unfavorable	---	Panicum	8
			Beaked panicum	11
			Longleaf uniola	23
EaB	Favorable	---	Pinehill bluestem	57
Eustis	Normal	700	Panicum	14
	Unfavorable	---	Pineland threeawn	14
			Pineywoods dropseed	14
Ja	Favorable	---	Pinehill bluestem	46
Jena	Normal	1,300	Slender bluestem	4
	Unfavorable	---	Panicum	8
			Beaked panicum	11
			Longleaf uniola	23
Ka	Favorable	---	Longleaf uniola	38
Kirkville	Normal	1,600	Pinehill bluestem	23
	Unfavorable	---	Carpetgrass	31
			Panicum	6
Kb,* KK:*				
Kirkville	Favorable	---	Longleaf uniola	38
	Normal	1,600	Pinehill bluestem	23
	Unfavorable	---	Carpetgrass	31
			Panicum	6
Bibb	Favorable	---	Pinehill bluestem	20
	Normal	2,000	Longleaf uniola	35
	Unfavorable	---	Sedges	10
			Plumegrass	10
LaB	Favorable	---	Pinehill bluestem	43
Lakeland	Normal	700	Low panicum	14
	Unfavorable	---	Pineland threeawn	14
			Pineywoods dropseed	14
			Grassleaf goldaster	14

See footnote at end of table.

TABLE 8.--WOODLAND UNDERSTORY VEGETATION--Continued

Map symbol and soil name	Total production		Characteristic vegetation	Composition
	Kind of year	Dry weight		
		Lb/acre		Pct
LH:*				
Lucy	Favorable	1,750	Pinehill bluestem	40
	Normal	750	Panicum	27
	Unfavorable	200	Pineland threeawn	08
			Beaked panicum	15
Heidel	Favorable	1,000	Pinehill bluestem	21
	Normal	750	Slender bluestem	15
	Unfavorable	200	Beaked panicum	21
			Panicum	27
LS:*				
Lucy	Favorable	1,750	Pinehill bluestem	40
	Normal	750	Panicum	27
	Unfavorable	200	Pineland threeawn	08
			Beaked panicum	15
Smithdale	Favorable	---	Longleaf uniola	42
	Normal	950	Pinehill bluestem	21
	Unfavorable	---	Beaked panicum	21
			Panicum	11
MaB, MaC	Favorable	---	Slender bluestem	15
McLaurin	Normal	1,000	Beaked panicum	21
	Unfavorable	---	Pinehill bluestem	21
			Panicums	27
OrB, OrC	Favorable	---	Longleaf uniola	30
Ora	Normal	1,000	Pinehill bluestem	20
	Unfavorable	---	Beaked panicum	15
			Switchgrass	5
			Broomsedge bluestem	5
PtA	Favorable	1,350	Pinehill bluestem	15
Prentiss	Normal	---	Longleaf uniola	44
	Unfavorable	---	Beaked panicum	26
			Panicum	7
QaA	Favorable	---	Longleaf uniola	13
Quitman	Normal	1,900	Pinehill bluestem	21
	Unfavorable	---	Cutover muhly	11
			Carpetgrass	21
RuB, RuC	Favorable	---	Longleaf uniola	42
Ruston	Normal	950	Pinehill bluestem	21
	Unfavorable	---	Beaked panicum	21
			Panicum	11
SaA, SaB, SaC	Favorable	---	Beaked panicum	15
Savannah	Normal	1,000	Longleaf uniola	30
	Unfavorable	---	Panicum	10
			Other perennial grasses	15
			Pinehill bluestem	30
ScD	Favorable	---	Longleaf uniola	42
Smithdale	Normal	950	Pinehill bluestem	21
	Unfavorable	---	Beaked panicum	21
			Panicum	11

See footnote at end of table.

TABLE 8.--WOODLAND UNDERSTORY VEGETATION--Continued

Map symbol and soil name	Total production		Characteristic vegetation	Composition
	Kind of year	Dry weight		
		Lb/acre		Pct
SdE:*				
Smithdale	Favorable	---	Longleaf uniola	42
	Normal	950	Pinehill bluestem	21
	Unfavorable	---	Beaked panicum	21
			Panicum	11
Lucy	Favorable	1,750	Pinehill bluestem	40
	Normal	750	Panicum	27
	Unfavorable	200	Pineland threeawn	08
			Beaked panicum	15
SmB2, SmC2, SmD2, SmE2 Sweatman	Favorable	---	Pinehill bluestem	25
	Normal	800	Beaked panicum	31
	Unfavorable	---	Panicum	25
SnE:*				
Sweatman	Favorable	---	Pinehill bluestem	25
	Normal	800	Beaked panicum	31
	Unfavorable	---	Panicum	25
Smithdale	Favorable	---	Longleaf uniola	42
	Normal	950	Pinehill bluestem	21
	Unfavorable	---	Beaked panicum	21
			Panicum	11
SW* Sweatman	Favorable	---	Pinehill bluestem	25
	Normal	800	Beaked panicum	31
	Unfavorable	---	Panicum	25
SX:*				
Sweatman	Favorable	---	Pinehill bluestem	25
	Normal	800	Beaked panicum	31
	Unfavorable	---	Panicum	25
Smithdale	Favorable	---	Longleaf uniola	42
	Normal	950	Pinehill bluestem	21
	Unfavorable	---	Beaked panicum	21
			Panicum	11
Va Vimville	Favorable	1,400	Pinehill bluestem	30
	Normal	---	Cutover muhly	17
	Unfavorable	---	Longleaf uniola	17
			Panicum	10

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Aa Annemaine	Severe: flooding.	Moderate: wetness, percs slowly.	Moderate: wetness.	Severe: erodes easily.	Moderate: wetness.
AbD:* Arundel	Severe: percs slowly.	Severe: percs slowly.	Severe: slope, percs slowly.	Severe: erodes easily.	Moderate: large stones, slope, thin layer.
Sweatman	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
AL:* Arundel	Severe: slope, percs slowly.	Severe: slope, percs slowly.	Severe: slope, percs slowly.	Severe: erodes easily.	Severe: slope.
Lauderdale	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: slope, depth to rock.	Severe: erodes easily.	Severe: slope, thin layer.
AR:* Arundel	Severe: slope, percs slowly.	Severe: slope, percs slowly.	Severe: slope, percs slowly.	Severe: erodes easily.	Severe: slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Williamsville	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
AS:* Arundel	Severe: slope, percs slowly.	Severe: slope, percs slowly.	Severe: slope, percs slowly.	Severe: erodes easily.	Severe: slope.
Sweatman	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Ba Bigbee	Severe: flooding.	Slight	Moderate: flooding.	Slight	Moderate: droughty, flooding.
BB:* Bigbee	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
Bibb	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Bo Bonn Variant	Severe: flooding, wetness, percs slowly.	Severe: wetness, excess sodium, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
CaA Cahaba	Slight	Slight	Slight	Slight	Slight.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Da Daleville	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
DJ:* Daleville	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Jena	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
EaB Eustis	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
Ja Jena	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
Ju:* Jena	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
Urban land.					
Ka Kirkville	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Moderate: wetness.	Moderate: wetness, flooding.
Kb,* KK:* Kirkville	Severe: flooding.	Moderate: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Severe: flooding.
Bibb	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
LaB Lakeland	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.	Moderate: droughty, too sandy.
LH:* Lucy	Severe: slope.	Severe: slope.	Severe: slope.	Slight	Severe: slope.
Heidel	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
LS:* Lucy	Severe: slope.	Severe: slope.	Severe: slope.	Slight	Severe: slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
MaB McLaurin	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
MaC McLaurin	Slight	Slight	Severe: slope.	Slight	Moderate: droughty.
OrB Ora	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Slight	Moderate: droughty.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
OrC---------- Ora	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Slight----------	Moderate: droughty.
OuD:* Ora----------	Moderate: slope, wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Severe: slope.	Slight----------	Moderate: droughty, slope.
Urban land.					
PtA---------- Prentiss	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Slight----------	Moderate: droughty.
PuA:* Prentiss----------	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Slight----------	Moderate: droughty.
Urban land.					
QaA---------- Quitman	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
RuB---------- Ruston	Slight----------	Slight----------	Moderate: slope, small stones.	Slight----------	Slight.
RuC---------- Ruston	Slight----------	Slight----------	Severe: slope.	Slight----------	Slight.
SaA---------- Savannah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness, droughty.
SaB---------- Savannah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness, droughty.
SaC---------- Savannah	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Severe: slope.	Moderate: wetness.	Moderate: wetness, droughty.
SbB:* Savannah----------	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness, droughty.
Urban land.					
ScD---------- Smithdale	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope.
SdE:* Smithdale----------	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Lucy----------	Severe: slope.	Severe: slope.	Severe: slope.	Slight----------	Severe: slope.

See footnote at end of table.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
SmB2 Sweatman	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight	Slight.
SmC2 Sweatman	Moderate: percs slowly.	Moderate: percs slowly.	Severe: slope.	Slight	Slight.
SmD2 Sweatman	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
SmE2 Sweatman	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope, erodes easily.	Severe: slope.
SnE:*					
Sweatman	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
SuD:*					
Sweatman	Moderate: slope, percs slowly.	Moderate: slope, percs slowly.	Severe: slope.	Severe: erodes easily.	Moderate: slope.
Urban land.					
SuE:*					
Sweatman	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Urban land.					
SW* Sweatman	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
SX:*					
Sweatman	Severe: slope.	Severe: slope.	Severe: slope.	Severe: erodes easily.	Severe: slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
Va Vimville	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Aa---------- Annemaine	Good	Good	Good	Good	Good	Good	Good	Good	Good	Poor
AbD:*										
Arundel----------	Fair	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
Sweatman----------	Fair	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
AL:*										
Arundel----------	Poor	Fair	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
Lauderdale--------	Poor	Poor	Fair	Fair	---	Very poor.	Very poor.	Poor	Fair	Very poor.
AR:*										
Arundel----------	Poor	Fair	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
Smithdale---------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Williamsville-----	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
AS:*										
Arundel----------	Poor	Fair	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
Sweatman----------	Poor	Fair	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
Smithdale---------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Ba---------- Bigbee	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
BB:*										
Bigbee----------	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Poor	Very poor.
Bibb----------	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good
Bo---------- Bonn Variant	Poor	Poor	Poor	Poor	---	Poor	Good	Poor	Poor	Fair
CaA---------- Cahaba	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Da---------- Daleville	Poor	Fair	Fair	Good	Fair	Good	Good	Fair	Good	Good
DJ:*										
Daleville---------	Poor	Fair	Fair	Good	Fair	Good	Good	Fair	Good	Good
Jena----------	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor
EaB---------- Eustis	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.

See footnote at end of table.

TABLE 10.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Ja---------- Jena	Poor	Fair	Fair	Good	Good	Poor	Poor	Fair	Good	Poor
Ka---------- Kirkville	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor
Kb,* KK:*										
Kirkville----------	Poor	Good	Good	Good	---	Poor	Poor	Fair	Good	Poor
Bibb----------	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good
LaB---------- Lakeland	Poor	Fair	Fair	Poor	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
LH:*										
Lucy----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Heidel----------	Very poor.	Very poor.	Good	Good	Good	Poor	Very poor.	Poor	Fair	Very poor.
LS:*										
Lucy----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Smithdale----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
MaB---------- McLaurin	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MaC---------- McLaurin	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
OrB---------- Ora	Good	Good	Good	Good	---	Poor	Poor	Good	Good	Poor
OrC---------- Ora	Fair	Good	Good	Good	---	Very poor.	Very poor.	Good	Good	Very poor.
PtA---------- Prentiss	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor
QaA---------- Quitman	Good	Good	Good	Good	---	Fair	Poor	Good	Good	Poor
RuB---------- Ruston	Good	Good	Good	---	Good	Poor	Very poor.	Good	Good	Very poor.
RuC---------- Ruston	Fair	Good	Good	---	Good	Very poor.	Very poor.	Good	Good	Very poor.
SaA, SaB---------- Savannah	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
SaC---------- Savannah	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
ScD---------- Smithdale	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
SdE:*										
Smithdale----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Lucy----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

See footnote at end of table.

TABLE 10.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
SmB2---------- Sweatman	Good	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
SmC2, SmD2---------- Sweatman	Fair	Good	Good	Good	---	Poor	Very poor.	Good	Good	Very poor.
SmE2---------- Sweatman	Very poor.	Fair	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
SnE:*										
Sweatman----------	Poor	Fair	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
Smithdale----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
SW*---------- Sweatman	Poor	Fair	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
SX:*										
Sweatman----------	Poor	Fair	Good	Good	---	Very poor.	Very poor.	Fair	Good	Very poor.
Smithdale----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Va---------- Vimville	Poor	Fair	Fair	Good	Fair	Good	Good	Fair	Good	Good

*See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Aa---------- Annemaine	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: low strength.	Moderate: wetness.
AbD:*						
Arundel----------	Moderate: depth to rock, too clayey, slope.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell.	Moderate: large stones slope, thin layer.
Sweatman---------	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
AL:*						
Arundel----------	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: slope.
Lauderdale-------	Severe: depth to rock, slope.	Severe: slope.	Severe: depth to rock, slope.	Severe: slope.	Severe: slope.	Severe: slope, thin layer.
AR:*						
Arundel----------	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: slope.
Smithdale--------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Williamsville----	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
AS:*						
Arundel----------	Severe: slope.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: shrink-swell, slope.	Severe: slope, shrink-swell.	Severe: slope.
Sweatman---------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Smithdale--------	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Ba---------- Bigbee	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: droughty, flooding.
BB:*						
Bigbee----------	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
Bibb----------	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
Bo---------- Bonn Variant	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness.
CaA---------- Cahaba	Slight---------	Slight---------	Slight---------	Slight---------	Slight---------	Slight.

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Da Daleville	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.
DJ:* Daleville	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
Jena	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
EaB Eustis	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
Ja Jena	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
Ju:* Jena	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
Urban land.						
Ka Kirkville	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Moderate: wetness, flooding.
Kb,* KK:* Kirkville	Severe: wetness.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Severe: flooding.
Bibb	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
LaB Lakeland	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty, too sandy.
LH:* Lucy	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Heidel	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
LS:* Lucy	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
MaB McLaurin	Severe: cutbanks cave.	Slight	Slight	Slight	Slight	Moderate: droughty.
MaC McLaurin	Severe: cutbanks cave.	Slight	Slight	Moderate: slope.	Slight	Moderate: droughty.
OrB Ora	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: low strength, wetness.	Moderate: droughty.
OrC Ora	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: low strength, wetness.	Moderate: droughty.

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
OuD:*						
Ora	Severe: wetness.	Moderate: wetness, slope.	Severe: wetness.	Severe: slope.	Moderate: low strength, wetness, slope.	Moderate: droughty, slope.
Urban land.						
PtA Prentiss	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: droughty.
PuA:*						
Prentiss	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: droughty.
Urban land.						
QaA Quitman	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: low strength, wetness.	Moderate: wetness.
RuB Ruston	Slight	Slight	Slight	Slight	Moderate: low strength.	Slight.
RuC Ruston	Slight	Slight	Slight	Moderate: slope.	Moderate: low strength.	Slight.
SaA, SaB Savannah	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
SaC Savannah	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness, slope.	Moderate: wetness.	Moderate: wetness, droughty.
SbB:*						
Savannah	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
Urban land.						
ScD Smithdale	Moderate: slope.	Moderate: slope.	Moderate: slope.	Severe: slope.	Moderate: slope.	Moderate: slope.
SdE:*						
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Lucy	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
SmB2 Sweatman	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength.	Slight.
SmC2 Sweatman	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
SmD2 Sweatman	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
SmE2 Sweatman	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.

See footnote at end of table.

TABLE 11.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
SnE:*						
Sweatman	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
SuD:*						
Sweatman	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
Urban land.						
SuE:*						
Sweatman	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Urban land.						
SW* Sweatman	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
SX:*						
Sweatman	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Smithdale	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.
Va Vimville	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding, low strength.	Severe: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Aa Annemaine	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey.
AbD:* Arundel	Severe: depth to rock, percs slowly.	Severe: depth to rock, slope.	Severe: depth to rock, too clayey.	Severe: depth to rock.	Poor: area reclaim, too clayey, hard to pack.
Sweatman	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
AL:* Arundel	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: area reclaim, too clayey, hard to pack.
Lauderdale	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope.	Poor: area reclaim, slope.
AR:* Arundel	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: area reclaim, too clayey, hard to pack.
Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Williamsville	Severe: percs slowly, slope.	Severe: slope.	Severe: seepage, slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
AS:* Arundel	Severe: depth to rock, percs slowly, slope.	Severe: depth to rock, slope.	Severe: depth to rock, slope, too clayey.	Severe: depth to rock, slope.	Poor: area reclaim, too clayey, hard to pack.
Sweatman	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Ba Bigbee	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
BB:*					
Bigbee	Severe: flooding, wetness, poor filter.	Severe: seepage, flooding.	Severe: flooding, seepage, wetness.	Severe: flooding, seepage.	Poor: seepage, too sandy.
Bibb	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Bo Bonn Variant	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness, excess sodium.	Severe: flooding, wetness.	Severe: wetness, excess sodium.
CaA Cahaba	Slight	Severe: seepage.	Severe: seepage.	Slight	Fair: thin layer.
Da Daleville	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
DJ:*					
Daleville	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Jena	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, seepage.	Severe: flooding, seepage.	Fair: too sandy.
EaB Eustis	Severe: poor filter.	Severe: seepage.	Severe: seepage.	Severe: seepage.	Fair: too sandy, thin layer.
Ja Jena	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, seepage.	Severe: flooding, seepage.	Fair: too sandy.
Ju:*					
Jena	Severe: flooding.	Severe: seepage, flooding.	Severe: flooding, seepage.	Severe: flooding, seepage.	Fair: too sandy.
Urban land.					
Ka Kirkville	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
Kb,* KK:*					
Kirkville	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Fair: wetness.
Bibb	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
LaB Lakeland	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
LH:*					
Lucy	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: seepage.	Poor: slope.
Heidel	Severe: slope.	Severe: slope.	Severe: slope.	Severe: seepage, slope.	Poor: slope.
LS:*					
Lucy	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: seepage.	Poor: slope.
Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
MaB, MaC McLaurin	Slight	Severe: seepage.	Slight	Severe: seepage.	Good.
OrB, OrC Ora	Severe: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Fair: wetness.
OuD:*					
Ora	Severe: wetness, percs slowly.	Severe: slope, wetness.	Moderate: wetness, slope.	Moderate: wetness, slope.	Fair: slope, wetness.
Urban land.					
PtA Prentiss	Severe: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Fair: wetness.
PuA:*					
Prentiss	Severe: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Fair: wetness.
Urban land.					
QaA Quitman	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
RuB, RuC Ruston	Slight	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
SaA, SaB, SaC Savannah	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
SbB:*					
Savannah	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
Urban land.					
ScD Smithdale	Moderate: percs slowly, slope.	Severe: seepage, slope.	Severe: seepage.	Severe: seepage.	Fair: too clayey, slope.

See footnote at end of table.

TABLE 12.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
SdE:*					
Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Lucy	Severe: slope.	Severe: seepage, slope.	Severe: slope.	Severe: seepage.	Poor: slope.
SmB2, SmC2 Sweatman	Severe: percs slowly.	Moderate: slope.	Severe: too clayey.	Slight	Poor: too clayey, hard to pack.
SmD2 Sweatman	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
SmE2 Sweatman	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
SnE:*					
Sweatman	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
SuD:*					
Sweatman	Severe: percs slowly.	Severe: slope.	Severe: too clayey.	Moderate: slope.	Poor: too clayey, hard to pack.
Urban land.					
SuE:*					
Sweatman	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Urban land.					
SW* Sweatman	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
SX:*					
Sweatman	Severe: percs slowly, slope.	Severe: slope.	Severe: slope, too clayey.	Severe: slope.	Poor: too clayey, hard to pack, slope.
Smithdale	Severe: slope.	Severe: seepage, slope.	Severe: seepage, slope.	Severe: seepage, slope.	Poor: slope.
Va Vimville	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," "probable," and "improbable." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Aa Annemaine	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
AbD:* Arundel	Poor: area reclaim, low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Sweatman	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
AL:* Arundel	Poor: area reclaim, low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Lauderdale	Poor: area reclaim.	Improbable: excess fines.	Improbable: excess fines.	Poor: area reclaim, slope.
AR:* Arundel	Poor: area reclaim, low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Smithdale	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Williamsville	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
AS:* Arundel	Poor: area reclaim, low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones, slope.
Sweatman	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Smithdale	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Ba Bigbee	Good	Probable	Improbable: too sandy.	Fair: too sandy, small stones.
BB:* Bigbee	Good	Probable	Improbable: too sandy.	Fair: too sandy, small stones.
Bibb	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Bo Bonn Variant	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, excess sodium.

See footnote at end of table.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
CaA---------- Cahaba	Good----------	Improbable: excess fines.	Improbable: excess fines.	Good.
Da---------- Daleville	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
DJ:*				
Daleville----------	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Jena----------	Good----------	Improbable: excess fines.	Improbable: excess fines.	Good.
EaB---------- Eustis	Good----------	Probable----------	Improbable: too sandy.	Fair: too sandy.
Ja---------- Jena	Good----------	Improbable: excess fines.	Improbable: excess fines.	Good.
Ju:*				
Jena----------	Good----------	Improbable: excess fines.	Improbable: excess fines.	Good.
Urban land.				
Ka---------- Kirkville	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Kb,* KK:*				
Kirkville----------	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Bibb----------	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
LaB---------- Lakeland	Good----------	Probable----------	Improbable: too sandy.	Poor: too sandy.
LH:*				
Lucy----------	Fair: slope.	Improbable: excess fines, thin layer.	Improbable: excess fines.	Poor: slope.
Heidel----------	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
LS:*				
Lucy----------	Fair: slope.	Improbable: excess fines, thin layer.	Improbable: excess fines.	Poor: slope.
Smithdale----------	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
MaB, MaC---------- McLaurin	Good----------	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, small stones.
OrB, OrC---------- Ora	Fair: low strength, thin layer, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.

See footnote at end of table.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
OuD:*				
Ora	Fair: low strength, thin layer, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: slope.
Urban land.				
PtA	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Prentiss				
PuA:*				
Prentiss	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Urban land.				
QaA	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Quitman				
RuB, RuC	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
Ruston				
SaA, SaB, SaC	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Savannah				
SbB:*				
Savannah	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
Urban land.				
ScD	Good	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones, slope.
Smithdale				
SdE:*				
Smithdale	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Lucy	Fair: slope.	Improbable: excess fines, thin layer.	Improbable: excess fines.	Poor: slope.
SmB2, SmC2, SmD2	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Sweatman				
SmE2	Poor: low strength, slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Sweatman				
SnE:*				
Sweatman	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Smithdale	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.

See footnote at end of table.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
SuD:*				
Sweatman	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Urban land.				
SuE:*				
Sweatman	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Urban land.				
SW*	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Sweatman				
SX:*				
Sweatman	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
Smithdale	Fair: slope.	Improbable: excess fines.	Improbable: excess fines.	Poor: slope.
Va	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Vimville				

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated]

Map symbol and soil name	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
Aa---------- Annemaine	Moderate: seepage.	Severe: wetness.	Severe: slow refill.	Percs slowly---	Erodes easily, wetness, percs slowly.	Erodes easily, percs slowly.
AbD:*						
Arundel----------	Moderate: depth to rock.	Moderate: thin layer, hard to pack.	Severe: no water.	Deep to water	Slope, depth to rock, erodes easily.	Slope, erodes easily, depth to rock.
Sweatman---------	Slight---------	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.
AL:*						
Arundel----------	Severe: slope.	Moderate: thin layer, hard to pack.	Severe: no water.	Deep to water	Slope, depth to rock, erodes easily.	Slope, erodes easily, depth to rock.
Lauderdale-------	Severe: depth to rock, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, depth to rock, erodes easily.	Slope, erodes easily, depth to rock.
AR:*						
Arundel----------	Moderate: depth to rock.	Moderate: thin layer, hard to pack.	Severe: no water.	Deep to water	Slope, depth to rock, erodes easily.	Slope, erodes easily, depth to rock.
Smithdale--------	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope----------	Slope.
Williamsville----	Moderate: seepage.	Moderate: hard to pack.	Severe: no water.	Deep to water	Slope----------	Slope.
AS:*						
Arundel----------	Severe: slope.	Moderate: thin layer, hard to pack.	Severe: no water.	Deep to water	Slope, depth to rock, erodes easily.	Slope, erodes easily, depth to rock.
Sweatman---------	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.
Smithdale--------	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope----------	Slope.
Ba---------- Bigbee	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water, cutbanks cave.	Too sandy------	Droughty.
BB:*						
Bigbee----------	Severe: seepage.	Severe: seepage, piping.	Severe: cutbanks cave.	Deep to water, cutbanks cave.	Too sandy------	Droughty.
Bibb----------	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding-------	Wetness--------	Wetness.
Bo---------- Bonn Variant	Slight---------	Severe: wetness, excess sodium.	Severe: no water.	Percs slowly, flooding, excess sodium.	Erodes easily, wetness, percs slowly.	Wetness, excess sodium, erodes easily.
CaA---------- Cahaba	Severe: seepage.	Moderate: thin layer, piping.	Severe: no water.	Deep to water	Favorable------	Favorable.

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
Da---- Daleville	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
DJ:* Daleville----	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.
Jena----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Favorable----	Droughty.
EaB---- Eustis	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Too sandy, soil blowing.	Droughty.
Ja---- Jena	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Favorable----	Droughty.
Ju:* Jena----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Favorable----	Droughty.
Urban land.						
Ka---- Kirkville	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding----	Wetness----	Favorable.
Kb,* KK:* Kirkville----	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding----	Wetness----	Favorable.
Bibb----	Moderate: seepage.	Severe: piping, wetness.	Moderate: slow refill.	Flooding----	Wetness----	Wetness.
LaB---- Lakeland	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Too sandy, soil blowing.	Droughty.
LH:* Lucy----	Severe: seepage.	Moderate: piping.	Severe: no water.	Deep to water	Too sandy, slope.	Slope, droughty.
Heidel----	Moderate: seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope----	Slope, droughty.
LS:* Lucy----	Severe: seepage.	Moderate: piping.	Severe: no water.	Deep to water	Too sandy, slope.	Slope, droughty.
Smithdale----	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope----	Slope.
MaB, MaC---- McLaurin	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Favorable----	Droughty.
OrB, OrC---- Ora	Moderate: seepage.	Moderate: piping, wetness.	Severe: no water.	Slope----	Erodes easily, wetness.	Erodes easily, droughty.
OuD:* Ora----	Moderate: seepage.	Moderate: piping, wetness.	Severe: no water.	Slope----	Slope, erodes easily, wetness.	Slope, erodes easily, droughty.
Urban land.						

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
PtA---------- Prentiss	Moderate: seepage.	Severe: piping.	Severe: no water.	Favorable------	Wetness, rooting depth.	Droughty, rooting depth.
PuA:* Prentiss---------	Moderate: seepage.	Severe: piping.	Severe: no water.	Favorable------	Wetness, rooting depth.	Droughty, rooting depth.
Urban land.						
QaA---------- Quitman	Slight---------	Severe: piping.	Severe: no water.	Favorable------	Wetness--------	Favorable.
RuB, RuC---------- Ruston	Moderate: seepage, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Favorable------	Favorable.
SaA---------- Savannah	Moderate: seepage.	Severe: piping.	Severe: no water.	Favorable------	Wetness, rooting depth.	Rooting depth.
SaB, SaC---------- Savannah	Moderate: seepage.	Severe: piping.	Severe: no water.	Slope----------	Wetness, rooting depth.	Rooting depth.
SbB:* Savannah---------	Moderate: seepage.	Severe: piping.	Severe: no water.	Favorable------	Wetness, rooting depth.	Rooting depth.
Urban land.						
ScD---------- Smithdale	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope----------	Slope.
SdE:* Smithdale--------	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope----------	Slope.
Lucy----------	Severe: seepage, slope.	Moderate: piping.	Severe: no water.	Deep to water	Too sandy, slope.	Slope, droughty.
SmB2, SmC2-------- Sweatman	Slight---------	Severe: hard to pack.	Severe: no water.	Deep to water	Erodes easily	Erodes easily.
SmD2---------- Sweatman	Slight---------	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.
SmE2---------- Sweatman	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.
SnE:* Sweatman---------	Slight---------	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.
Smithdale--------	Severe: seepage.	Severe: piping.	Severe: no water.	Deep to water	Slope----------	Slope.
SuD:* Sweatman---------	Slight---------	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.
Urban land.						
SuE:* Sweatman---------	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.
Urban land.						
SW*---------- Sweatman	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.

See footnote at end of table.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Terraces and diversions	Grassed waterways
SX:*						
Sweatman	Severe: slope.	Severe: hard to pack.	Severe: no water.	Deep to water	Slope, erodes easily.	Slope, erodes easily.
Smithdale	Severe: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope	Slope.
Va Vimville	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Erodes easily, wetness, percs slowly.	Wetness, erodes easily, percs slowly.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Aa---------- Annemaine	0-6	Fine sandy loam	SM, SM-SC, ML, CL-ML	A-4	0	95-100	95-100	70-95	40-75	<20	NP-5
	6-36	Clay, clay loam	CL	A-6, A-7	0	95-100	95-100	85-100	70-98	30-50	10-25
	36-50	Sandy clay loam, loam, clay loam.	SC, CL	A-4, A-6	0	95-100	95-100	80-100	36-80	20-35	8-15
	50-80	Sandy clay loam, fine sandy loam, sandy loam.	SM, SM-SC, SC	A-2, A-4	0	95-100	95-100	60-90	30-50	<20	NP-10
AbD:*											
Arundel----------	0-6	Sandy loam-------	ML, CL, CL-ML	A-4	0-6	85-100	77-98	75-98	60-90	<30	NP-10
	6-38	Silty clay loam, silty clay, clay.	CL, CH	A-7	0-15	85-98	80-95	80-95	65-90	44-65	22-40
	38-45	Weathered bedrock	---	---	---	---	---	---	---	---	---
Sweatman--------	0-5	Fine sandy loam	CL-ML, CL, ML	A-4	0	100	100	90-100	55-90	<35	NP-10
	5-23	Clay, silty clay, silty clay loam.	MH	A-7	0	95-100	95-100	95-100	90-95	60-80	25-40
	23-36	Clay, silty clay, loam.	MH, CL	A-6, A-7	0	95-100	80-100	80-100	70-85	30-70	12-30
	36-65	Stratified weathered shale to fine sandy loam, loam.	ML, MH	A-7	0	95-100	75-100	60-95	55-95	41-65	12-30
AL:*											
Arundel----------	0-6	Sandy loam-------	ML, CL, CL-ML	A-4	0-6	85-100	77-98	75-98	60-90	<30	NP-10
	6-38	Silty clay loam, silty clay, clay.	CL, CH	A-7	0-15	85-98	80-95	80-95	65-90	44-65	22-40
	38-45	Weathered bedrock	---	---	---	---	---	---	---	---	---
Lauderdale------	0-7	Fine sandy loam	ML, CL-ML, CL	A-4	0	85-100	77-98	75-98	60-90	<25	NP-10
	7-17	Clay loam, sandy clay loam, silty clay loam.	CL	A-4, A-6	0-2	85-98	77-95	70-85	60-80	20-35	8-20
	17-25	Weathered bedrock	---	---	---	---	---	---	---	---	---
AR:*											
Arundel----------	0-6	Sandy loam-------	ML, CL, CL-ML	A-4	0-6	85-100	77-98	75-98	60-90	<30	NP-10
	6-38	Silty clay loam, silty clay, clay.	CL, CH	A-7	0-15	85-98	80-95	80-95	65-90	44-65	22-40
	38-45	Weathered bedrock	---	---	---	---	---	---	---	---	---
Smithdale-------	0-10	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	10-54	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	54-75	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
Williamsville---	0-4	Sandy loam-------	SM-SC, CL-ML, SC, ML	A-4	0	98-100	80-100	60-90	36-70	18-30	3-10
	4-52	Clay, sandy clay, clay loam.	CL, CH	A-6, A-7	0	98-100	80-100	80-100	50-80	38-60	20-36
	52-62	Sandy clay loam, loam, sandy loam.	SC, CL	A-4, A-6	0	98-100	80-100	60-90	36-65	25-40	8-20

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
AS:*											
Arundel	0-6	Sandy loam	ML, CL, CL-ML	A-4	0-6	85-100	77-98	75-98	60-90	<30	NP-10
	6-38	Silty clay loam, silty clay, clay.	CL, CH	A-7	0-15	85-98	80-95	80-95	65-90	44-65	22-40
	38-45	Weathered bedrock	---	---	---	---	---	---	---	---	---
Sweatman	0-5	Fine sandy loam	CL-ML, CL, ML	A-4	0	100	100	90-100	55-90	<35	NP-10
	5-23	Clay, silty clay, silty clay loam.	MH	A-7	0	95-100	95-100	95-100	90-95	60-80	25-40
	23-36	Clay, silty clay, loam.	MH, CL	A-6, A-7	0	95-100	80-100	80-100	70-85	30-70	12-30
	36-65	Stratified, variable, weathered shale to fine sandy loam.	ML, MH	A-7	0	95-100	75-100	60-95	55-95	41-65	12-30
Smithdale	0-10	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	10-54	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	54-75	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
Ba Bigbee	0-50	Loamy sand	SM, SP-SM	A-2-4, A-3	0	100	95-100	80-95	5-30	---	NP
	50-75	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	85-100	85-100	80-100	5-20	---	NP
BB:*											
Bigbee	0-50	Loamy sand	SM, SP-SM	A-2-4, A-3	0	100	95-100	80-95	5-30	---	NP
	50-75	Sand, fine sand	SP-SM, SM	A-2-4, A-3	0	85-100	85-100	80-100	5-20	---	NP
Bibb	0-30	Sandy loam	SM, SM-SC, ML, CL-ML	A-2, A-4	0-5	95-100	90-100	60-90	30-60	<25	NP-7
	30-65	Sandy loam, loam, silt loam.	SM, SM-SC, ML, CL-ML	A-2, A-4	0-10	60-100	50-100	40-100	30-90	<30	NP-7
Bo Bonn Variant	0-5	Loam	ML	A-4	0	100	100	95-100	51-70	<28	NP-7
	5-38	Loam, sandy clay loam, clay loam.	CL	A-6, A-7	0	95-100	90-100	85-100	60-80	30-44	12-22
	38-62	Sandy loam, loam, fine sandy loam.	CL, SC, CL-ML	A-4, A-6	0	100	95-100	90-100	45-60	20-35	4-15
CaA Cahaba	0-8	Fine sandy loam	SM	A-4, A-2-4	0	95-100	95-100	65-90	30-45	---	NP
	8-40	Sandy clay loam, loam, clay loam.	SC, CL	A-4, A-6	0	90-100	80-100	75-90	40-75	22-35	8-15
	40-65	Sand, loamy sand, fine sandy loam.	SM, SP-SM	A-2-4	0	95-100	90-100	60-85	10-35	---	NP
Da Daleville	0-16	Loam	ML, CL-ML	A-4	0	100	100	85-100	60-90	<30	NP-7
	16-70	Clay loam, loam, sandy clay loam.	CL	A-6	0	100	100	90-100	70-80	28-38	11-20
DJ:*											
Daleville	0-16	Loam	ML, CL-ML	A-4	0	100	100	85-100	60-90	<30	NP-7
	16-70	Clay loam, loam, sandy clay loam.	CL	A-6	0	100	100	90-100	70-80	28-38	11-20
Jena	0-4	Fine sandy loam	ML, SM	A-4, A-2-4	0	100	100	60-85	25-55	<22	NP-4
	4-38	Silt loam, very fine sandy loam, loam.	SM, ML, CL-ML, SM-SC	A-4, A-2-4	0	100	100	55-90	25-70	<22	NP-4
	38-65	Fine sandy loam, sandy loam, loamy fine sand.	SM	A-2-4, A-4	0	100	100	50-80	20-50	<22	NP

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
EaB---------- Eustis	0-6	Loamy sand-------	SP-SM, SM	A-3, A-2-4	0	100	100	90-100	5-16	---	NP
	6-14	Sand, fine sand, loamy fine sand.	SP-SM, SM	A-3, A-2-4	0	100	100	90-100	5-16	---	NP
	14-64	Loamy fine sand, loamy sand.	SM	A-2-4	0	100	100	90-100	15-25	---	NP
	64-70	Sand, fine sand	SP-SM	A-3, A-2-4	0	100	100	90-100	5-12	---	NP
Ja---------- Jena	0-4	Fine sandy loam	ML, SM	A-4, A-2-4	0	100	100	60-85	25-55	<22	NP-4
	4-38	Silt loam, very fine sandy loam, loam.	SM, ML, CL-ML, SM-SC	A-4, A-2-4	0	100	100	55-90	25-70	<22	NP-4
	38-65	Fine sandy loam, sandy loam, loamy fine sand.	SM	A-2-4, A-4	0	100	100	50-80	20-50	<22	NP
Ju:*											
Jena----------	0-4	Fine sandy loam	ML, SM	A-4, A-2-4	0	100	100	60-85	25-55	<22	NP-4
	4-38	Silt loam, very fine sandy loam, loam.	SM, ML, CL-ML, SM-SC	A-4, A-2-4	0	100	100	55-90	25-70	<22	NP-4
	38-65	Fine sandy loam, sandy loam, loamy fine sand.	SM	A-2-4, A-4	0	100	100	50-80	20-50	<22	NP
Urban land.											
Ka---------- Kirkville	0-4	Fine sandy loam	ML, SM, CL-ML, SM-SC	A-2, A-4	0	100	100	60-85	30-65	<20	NP-5
	4-65	Loam, sandy loam, fine sandy loam.	ML, SM, CL-ML, SM-SC	A-2, A-4	0	100	100	60-100	30-65	<20	NP-5
Kb:*											
Kirkville-------	0-4	Fine sandy loam	ML, SM, CL-ML, SM-SC	A-2, A-4	0	100	100	60-85	30-65	<20	NP-5
	4-65	Loam, sandy loam, fine sandy loam.	ML, SM, CL-ML, SM-SC	A-2, A-4	0	100	100	60-100	30-65	<20	NP-5
Bibb----------	0-30	Sandy loam-------	SM, SM-SC, ML, CL-ML	A-2, A-4	0-5	95-100	90-100	60-90	30-60	<25	NP-7
	30-65	Sandy loam, loam, silt loam.	SM, SM-SC, ML, CL-ML	A-2, A-4	0-10	60-100	50-100	40-100	30-90	<30	NP-7
KK:*											
Kirkville-------	0-4	Fine sandy loam	ML, SM, CL-ML, SM-SC	A-2, A-4	0	100	100	60-85	30-65	<20	NP-5
	4-65	Loam, sandy loam, fine sandy loam.	ML, SM, CL-ML, SM-SC	A-2, A-4	0	100	100	60-100	30-65	<20	NP-5
Bibb----------	0-30	Sandy loam-------	SM, SM-SC, ML, CL-ML	A-2, A-4	0-5	95-100	90-100	60-90	30-60	<25	NP-7
	30-65	Sandy loam, loam, silt loam.	SM, SM-SC, ML, CL-ML	A-2, A-4	0-10	60-100	50-100	40-100	30-90	<30	NP-7
LaB---------- Lakeland	0-50	Sand----------	SP-SM	A-3, A-2-4	0	90-100	90-100	60-100	5-12	---	NP
	50-75	Sand, fine sand	SP, SP-SM	A-3, A-2-4	0	90-100	90-100	50-100	1-12	---	NP

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
LH:*											
Lucy	0-31	Loamy sand	SM, SP-SM	A-2	0	98-100	95-100	50-87	10-30	---	NP
	31-43	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	97-100	95-100	55-95	15-50	18-30	NP-15
	43-65	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, SM	A-2, A-6, A-4	0	100	95-100	60-95	20-50	20-40	3-20
Heidel	0-6	Loamy sand	SM	A-2-4	0	90-100	85-100	50-75	15-30	<20	NP-3
	6-80	Fine sandy loam, sandy loam, loam.	CL-ML, SM-SC, SM	A-4	0	90-100	85-100	60-85	36-55	18-22	3-7
LS:*											
Lucy	0-31	Loamy sand	SM, SP-SM	A-2	0	98-100	95-100	50-87	10-30	---	NP
	31-43	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	97-100	95-100	55-95	15-50	10-30	NP-15
	43-65	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, SM	A-2, A-6, A-4	0	100	95-100	60-95	20-50	20-40	3-20
Smithdale	0-10	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	10-54	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	54-75	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
MaB, MaC	0-6	Loamy sand	SM	A-2	0	90-100	90-100	50-75	15-30	<20	NP-4
McLaurin	6-38	Sandy loam, fine sandy loam.	SM, SC, SM-SC	A-4	0	90-100	90-100	85-95	36-45	<30	NP-10
	38-44	Loamy fine sand	SM	A-2	0	90-100	90-100	50-75	15-30	<20	NP-4
	44-65	Sandy loam, sandy clay loam, loam.	SC, ML, CL, SM	A-4, A-6	0	90-100	90-100	70-80	36-55	30-40	6-15
OrB, OrC	0-6	Fine sandy loam	SM-SC, SM, ML, CL-ML	A-4, A-2	0	100	95-100	65-85	30-65	<30	NP-5
Ora	6-23	Clay loam, sandy clay loam, loam.	CL	A-6, A-4, A-7	0	100	95-100	80-100	50-80	25-48	8-22
	23-65	Sandy clay loam, loam, sandy loam.	CL	A-6, A-7, A-4	0	100	95-100	80-100	50-75	25-43	8-25
OuD:*											
Ora	0-6	Fine sandy loam	SM-SC, SM, ML, CL-ML	A-4, A-2	0	100	95-100	65-85	30-65	<30	NP-5
	6-23	Clay loam, sandy clay loam, loam.	CL	A-6, A-4, A-7	0	100	95-100	80-100	50-80	25-48	8-22
	23-65	Sandy clay loam, loam, sandy loam.	CL	A-6, A-7, A-4	0	100	95-100	80-100	50-75	25-43	8-25
Urban land.											
PtA	0-6	Fine sandy loam	SC, SM-SC, SM	A-4	0	100	100	65-85	36-50	<30	NP-10
Prentiss	6-60	Loam, sandy loam, fine sandy loam.	CL-ML, CL, SC, SM-SC	A-6, A-4	0	100	100	70-100	40-75	20-35	4-12
PuA:*											
Prentiss	0-6	Fine sandy loam	SC, SM-SC, SM	A-4	0	100	100	65-85	36-50	<30	NP-10
	6-60	Loam, sandy loam, fine sandy loam.	CL-ML, CL, SC, SM-SC	A-6, A-4	0	100	100	70-100	40-75	20-35	4-12
Urban land.											

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
QaA---------- Quitman	0-8	Loam----------	SM, ML	A-4, A-2	0	100	100	85-100	30-55	<20	NP-3
	8-18	Fine sandy loam, loam.	SC, CL, CL-ML, SM-SC	A-4, A-6	0	100	100	90-100	40-70	20-35	4-15
	18-65	Sandy clay loam, loam, clay loam.	CL, SC	A-6, A-7	0	100	100	90-100	40-65	25-45	11-20
RuB, RuC---------- Ruston	0-7	Fine sandy loam	SM, ML	A-4, A-2-4	0	85-100	78-100	65-100	30-75	<20	NP-3
	7-40	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-40	11-20
	40-60	Fine sandy loam, sandy loam, loamy sand.	SM, ML, CL-ML, SM-SC	A-4, A-2-4	0	85-100	78-100	65-100	30-75	<27	NP-7
	60-80	Sandy clay loam, loam, clay loam.	SC, CL	A-6	0	85-100	78-100	70-100	36-75	30-42	11-20
SaA, SaB, SaC---- Savannah	0-7	Fine sandy loam	SM, ML	A-2-4, A-4	0	100	100	60-85	30-55	<25	NP-4
	7-25	Sandy clay loam, clay loam, loam.	CL, SC, CL-ML	A-4, A-6	0	100	100	80-100	40-80	23-40	7-19
	25-65	Loam, clay loam, sandy clay loam.	CL, SC, CL-ML	A-4, A-6, A-7	0	100	100	80-100	40-80	23-43	7-19
SbB:* Savannah--------	0-7	Fine sandy loam	SM, ML	A-2-4, A-4	0	100	100	60-85	30-55	<25	NP-4
	7-25	Sandy clay loam, clay loam, loam.	CL, SC, CL-ML	A-4, A-6	0	100	100	80-100	40-80	23-40	7-19
	25-65	Loam, clay loam, sandy clay loam.	CL, SC, CL-ML	A-4, A-6, A-7	0	100	100	80-100	40-80	23-43	7-19
Urban land.											
ScD---------- Smithdale	0-10	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	10-54	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	54-75	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
SdE*: Smithdale-------	0-10	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	10-54	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	54-75	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
Lucy----------	0-31	Loamy sand-------	SM, SP-SM	A-2	0	98-100	95-100	50-87	10-30	---	NP
	31-43	Sandy loam, sandy clay loam.	SM, SC, SM-SC	A-2, A-4, A-6	0	97-100	95-100	55-95	15-50	18-30	NP-15
	43-65	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, SM	A-2, A-6, A-4	0	100	95-100	60-95	20-50	20-40	3-20
SmB2, SmC2, SmD2, SmE2---------- Sweatman	0-5	Fine sandy loam	CL-ML, CL, ML	A-4	0	100	100	90-100	55-90	<35	NP-10
	5-23	Clay, silty clay, silty clay loam.	MH	A-7	0	95-100	95-100	95-100	90-95	60-80	25-40
	23-36	Clay, silty clay, loam.	MH, CL	A-6, A-7	0	95-100	80-100	80-100	70-85	30-70	12-30
	36-65	Stratified, variable, weathered shale to fine sandy loam.	ML, MH	A-7	0	95-100	75-100	60-95	55-95	41-65	12-30

See footnote at end of table.

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag-ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
SnE:*											
Sweatman	0-5	Fine sandy loam	CL-ML, CL, ML	A-4	0	100	100	90-100	55-90	<35	NP-10
	5-23	Clay, silty clay, silty clay loam.	MH	A-7	0	95-100	95-100	95-100	90-95	60-80	25-40
	23-36	Clay, silty clay, loam.	MH, CL	A-6, A-7	0	95-100	80-100	80-100	70-85	30-70	12-30
	36-65	Stratified, variable, weathered shale to fine sandy loam.	ML, MH	A-7	0	95-100	75-100	60-95	55-95	41-65	12-30
Smithdale	0-10	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	10-54	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	54-75	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
SuD,* SuE:*											
Sweatman	0-5	Fine sandy loam	CL-ML, CL, ML	A-4	0	100	100	90-100	55-90	<35	NP-10
	5-23	Clay, silty clay, silty clay loam.	MH	A-7	0	95-100	95-100	95-100	90-95	60-80	25-40
	23-36	Clay, silty clay, loam.	MH, CL	A-6, A-7	0	95-100	80-100	80-100	70-85	30-70	12-30
	36-65	Stratified, variable, weathered shale to fine sandy loam.	ML, MH	A-7	0	95-100	75-100	60-95	55-95	41-65	12-30
Urban land.											
SW* Sweatman	0-5	Fine sandy loam	CL-ML, CL, ML	A-4	0	100	100	90-100	55-90	<35	NP-10
	5-23	Clay, silty clay, silty clay loam.	MH	A-7	0	95-100	95-100	95-100	90-95	60-80	25-40
	23-36	Clay, silty clay, loam.	MH, CL	A-6, A-7	0	95-100	80-100	80-100	70-85	30-70	12-30
	36-65	Stratified, variable, weathered shale to fine sandy loam.	ML, MH	A-7	0	95-100	75-100	60-95	55-95	41-65	12-30
SX:*											
Sweatman	0-5	Fine sandy loam	CL-ML, CL, ML	A-4	0	100	100	90-100	55-90	<35	NP-10
	5-23	Clay, silty clay, silty clay loam.	MH	A-7	0	95-100	95-100	95-100	90-95	60-80	25-40
	23-36	Clay, silty clay, loam.	MH, CL	A-6, A-7	0	95-100	80-100	80-100	70-85	30-70	12-30
	36-65	Stratified, variable, weathered shale to fine sandy loam.	ML, MH	A-7	0	95-100	75-100	60-95	55-95	41-65	12-30
Smithdale	0-10	Fine sandy loam	SM, SM-SC	A-4	0	100	85-100	60-80	36-49	<20	NP-5
	10-54	Clay loam, sandy clay loam, loam.	SM-SC, SC, CL, CL-ML	A-6, A-4	0	100	85-100	80-95	45-75	23-38	7-15
	54-75	Loam, sandy loam	SM, ML, CL, SC	A-4	0	100	85-100	65-80	36-70	<30	NP-10
Va	0-12	Loam	ML, CL-ML	A-4	0	100	100	85-100	60-90	<30	NP-7
Vimville	12-65	Clay loam, loam, sandy clay loam.	CL	A-6	0	100	100	90-100	60-80	28-38	10-20

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS

[The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Map symbol and soil name	Depth	Clay	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
							K	T	
	In	Pct	In/hr	In/in	pH				Pct
Aa	0-6	10-20	0.6-2.0	0.12-0.16	4.5-6.5	Low	0.43	4	.5-1
Annemaine	6-36	35-50	0.06-0.2	0.14-0.18	4.5-5.5	Moderate	0.37		
	36-50	20-35	0.2-0.6	0.14-0.18	4.5-5.5	Low	0.37		
	50-80	5-25	0.2-2.0	0.14-0.18	4.5-5.5	Low	0.32		
AbD:*									
Arundel	0-6	15-25	0.6-2.0	0.14-0.17	3.6-5.5	Low	0.37	3	.5-1
	6-38	35-78	<0.06	0.12-0.18	3.6-4.4	High	0.32		
	38-45	---	---	---	---	---	---		
Sweatman	0-5	5-20	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.37	3	.5-2
	5-23	35-55	0.2-0.6	0.16-0.20	4.5-5.5	Moderate	0.28		
	23-36	35-55	0.2-0.6	0.16-0.20	4.5-5.5	Moderate	0.28		
	36-65	---	0.2-0.6	0.10-0.18	4.5-5.5	Moderate	---		
AL:*									
Arundel	0-6	15-25	0.6-2.0	0.14-0.17	3.6-5.5	Low	0.37	3	.5-1
	6-38	35-78	<0.06	0.12-0.18	3.6-4.4	High	0.32		
	38-45	---	---	---	---	---	---		
Lauderdale	0-7	---	0.6-2.0	0.15-0.20	4.5-5.5	Low	0.37	2	---
	7-17	---	0.2-0.6	0.15-0.20	4.5-5.5	Moderate	0.32		
	17-25	---	---	---	---	---	---		
AR:*									
Arundel	0-6	15-25	0.6-2.0	0.14-0.17	3.6-5.5	Low	0.37	3	.5-1
	6-38	35-78	<0.06	0.12-0.18	3.6-4.4	High	0.32		
	38-45	---	---	---	---	---	---		
Smithdale	0-10	2-15	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	---
	10-54	18-33	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	54-75	12-27	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
Williamsville	0-4	---	0.6-2.0	0.12-0.17	4.5-5.5	Low	0.32	5	---
	4-52	---	0.2-0.6	0.14-0.20	4.5-5.5	Moderate	0.24		
	52-62	---	0.6-2.0	0.14-0.18	4.5-5.5	Low	0.24		
AS:*									
Arundel	0-6	15-25	0.6-2.0	0.14-0.17	3.6-5.5	Low	0.37	3	.5-1
	6-38	35-78	<0.06	0.12-0.18	3.6-4.4	High	0.32		
	38-45	---	---	---	---	---	---		
Sweatman	0-5	5-20	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.37	3	.5-2
	5-23	35-55	0.2-0.6	0.16-0.20	4.5-5.5	Moderate	0.28		
	23-36	35-55	0.2-0.6	0.16-0.20	4.5-5.5	Moderate	0.28		
	36-65	---	0.2-0.6	0.10-0.18	4.5-5.5	Moderate	---		
Smithdale	0-10	2-15	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	---
	10-54	18-33	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	54-75	12-27	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
Ba	0-50	4-10	6.0-20	0.05-0.10	4.5-6.0	Low	0.17	5	.5-2
Bigbee	50-75	<5	6.0-20	0.05-0.08	4.5-6.0	Low	0.17		
BB:*									
Bigbee	0-50	4-10	6.0-20	0.05-0.10	4.5-6.0	Low	0.17	5	.5-2
	50-75	<5	6.0-20	0.05-0.08	4.5-6.0	Low	0.17		
Bibb	0-30	2-18	0.6-2.0	0.12-0.18	4.5-5.5	Low	0.20	5	.5-2
	30-65	2-18	0.6-2.0	0.12-0.20	4.5-5.5	Low	0.37		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Map symbol and soil name	Depth	Clay	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
							K	T	
	In	Pct	In/hr	In/in	pH				Pct
Bo	0-5	5-15	0.2-0.6	0.15-0.20	4.5-7.0	Low	0.55	3	---
Bonn Variant	5-38	16-35	<0.06	0.08-0.14	5.6-9.0	Low	----		
	38-62	5-25	<0.2	0.08-0.14	5.6-9.0	Low	----		
CaA	0-8	7-17	2.0-6.0	0.05-0.14	4.5-6.0	Very low	0.24	4	.5-2
Cahaba	8-40	18-35	0.6-2.0	0.12-0.15	4.5-6.0	Low	0.28		
	40-65	4-20	2.0-20	0.05-0.10	4.5-6.0	Very low	0.24		
Da	0-16	10-20	0.6-2.0	0.18-0.20	4.5-6.5	Low	0.37	3	.5-2
Daleville	16-70	20-35	0.06-0.2	0.16-0.20	4.5-5.5	Moderate	0.37		
DJ:*									
Daleville	0-16	10-20	0.6-2.0	0.18-0.20	4.5-6.5	Low	0.37	3	.5-2
	16-70	20-35	0.06-0.2	0.16-0.20	4.5-5.5	Moderate	0.37		
Jena	0-4	10-20	0.6-2.0	0.12-0.20	4.5-6.0	Low	0.28	5	---
	4-38	10-18	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.28		
	38-65	5-20	2.0-6.0	0.08-0.14	4.5-5.5	Low	0.24		
EaB	0-6	2-10	6.0-20	0.08-0.10	4.5-5.5	Low	0.17	5	.5-2
Eustis	6-14	2-10	6.0-20	0.05-0.08	4.5-5.5	Low	0.17		
	14-64	6-14	6.0-20	0.07-0.11	4.5-5.5	Low	0.17		
	64-70	2-7	6.0-20	0.05-0.07	4.5-5.5	Low	0.17		
Ja	0-4	10-20	0.6-2.0	0.12-0.20	4.5-6.0	Low	0.28	5	---
Jena	4-38	10-18	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.28		
	38-65	5-20	2.0-6.0	0.08-0.14	4.5-5.5	Low	0.24		
Ju:*									
Jena	0-4	10-20	0.6-2.0	0.12-0.20	4.5-6.0	Low	0.28	5	---
	4-38	10-18	0.6-2.0	0.10-0.20	4.5-5.5	Low	0.28		
	38-65	5-20	2.0-6.0	0.08-0.14	4.5-5.5	Low	0.24		
Urban land.									
Ka	0-4	10-20	0.6-2.0	0.15-0.15	4.5-5.5	Low	0.28	5	---
Kirkville	4-65	10-18	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.28		
Kb,* KK:*									
Kirkville	0-4	10-20	0.6-2.0	0.15-0.15	4.5-5.5	Low	0.28	5	---
	4-65	10-18	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.28		
Bibb	0-30	2-18	0.6-2.0	0.12-0.18	4.5-5.5	Low	0.20	5	.5-2
	30-65	2-18	0.6-2.0	0.12-0.20	4.5-5.5	Low	0.37		
LaB	0-50	2-8	>20	0.05-0.08	4.5-5.5	Low	0.17	5	>1
Lakeland	50-75	2-6	>20	0.03-0.08	4.5-5.5	Low	0.17		
LH:*									
Lucy	0-31	1-12	6.0-20	0.06-0.10	5.1-5.5	Low	0.20	5	.5-1
	31-43	10-30	2.0-6.0	0.10-0.12	4.5-5.5	Low	0.24		
	43-65	20-35	0.6-2.0	0.12-0.14	4.5-5.5	Low	0.28		
Heidel	0-6	1-10	6.0-20	0.05-0.10	4.5-5.5	Low	0.17	5	.5-2
	6-80	10-18	0.6-2.0	0.10-0.15	4.5-5.5	Low	0.20		
LS:*									
Lucy	0-31	1-12	6.0-20	0.06-0.10	5.1-5.5	Low	0.20	5	.5-1
	31-43	10-30	2.0-6.0	0.10-0.12	4.5-5.5	Low	0.24		
	43-65	20-35	0.6-2.0	0.12-0.14	4.5-5.5	Low	0.28		
Smithdale	0-10	2-15	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	---
	10-54	18-33	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	54-75	12-27	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Map symbol and soil name	Depth	Clay	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
							K	T	
	In	Pct	In/hr	In/in	pH				Pct
MaB, MaC---------	0-6	1-5	6.0-20	0.05-0.10	4.5-5.5	Very low-------	0.17	5	.5-2
McLaurin	6-38	10-18	0.6-2.0	0.10-0.15	4.5-5.5	Low------------	0.20		
	38-44	5-15	2.0-6.0	0.05-0.10	4.5-5.5	Very low-------	0.20		
	44-65	5-27	0.6-2.0	0.10-0.15	4.5-5.5	Low------------	0.20		
OrB, OrC---------	0-6	10-25	2.0-6.0	0.10-0.13	3.6-5.5	Low------------	0.32	3	1-3
Ora	6-23	18-33	0.6-2.0	0.12-0.18	3.6-5.5	Low------------	0.37		
	23-65	18-33	0.2-0.6	0.05-0.10	3.6-5.5	Low------------	0.32		
OuD:*									
Ora----------	0-6	10-25	2.0-6.0	0.10-0.13	3.6-5.5	Low------------	0.32	3	1-3
	6-23	18-33	0.6-2.0	0.12-0.18	3.6-5.5	Low------------	0.37		
	23-65	18-33	0.2-0.6	0.05-0.10	3.6-5.5	Low------------	0.32		
Urban land.									
PtA----------	0-6	5-18	0.6-2.0	0.12-0.16	4.5-5.5	Low------------	0.24	3	---
Prentiss	6-60	10-20	0.2-0.6	0.06-0.09	4.5-5.5	Low------------	0.24		
PuA:*									
Prentiss--------	0-6	5-18	0.6-2.0	0.12-0.16	4.5-5.5	Low------------	0.24	3	---
	6-60	10-20	0.2-0.6	0.06-0.09	4.5-5.5	Low------------	0.24		
Urban land.									
QaA----------	0-8	5-15	0.6-2.0	0.13-0.16	4.5-5.5	Low------------	0.28	3	1-3
Quitman	8-18	18-32	0.6-2.0	0.15-0.20	4.5-5.5	Low------------	0.28		
	18-65	18-35	0.2-0.6	0.10-0.18	4.5-5.5	Low------------	0.28		
RuB, RuC---------	0-7	5-20	0.6-2.0	0.09-0.16	4.5-6.5	Low------------	0.32	5	.5-2
Ruston	7-40	18-35	0.6-2.0	0.12-0.17	4.5-6.0	Low------------	0.28		
	40-60	10-20	0.6-2.0	0.12-0.15	4.5-6.0	Low------------	0.32		
	60-80	15-38	0.6-2.0	0.12-0.17	4.5-6.0	Low------------	0.28		
SaA, SaB, SaC----	0-7	3-16	0.6-2.0	0.10-0.15	4.5-5.5	Low------------	0.24	3	.5-3
Savannah	7-25	18-32	0.6-2.0	0.13-0.20	4.5-5.5	Low------------	0.28		
	25-65	18-32	0.2-0.6	0.05-0.10	4.5-5.5	Low------------	0.24		
SbB:*									
Savannah--------	0-7	3-16	0.6-2.0	0.10-0.15	4.5-5.5	Low------------	0.24	3	.5-3
	7-25	18-32	0.6-2.0	0.13-0.20	4.5-5.5	Low------------	0.28		
	25-65	18-32	0.2-0.6	0.05-0.10	4.5-5.5	Low------------	0.24		
Urban land.									
ScD----------	0-10	2-15	2.0-6.0	0.14-0.16	4.5-5.5	Low------------	0.28	5	---
Smithdale	10-54	18-33	0.6-2.0	0.15-0.17	4.5-5.5	Low------------	0.24		
	54-75	12-27	2.0-6.0	0.14-0.16	4.5-5.5	Low------------	0.28		
SdE:*									
Smithdale-------	0-10	2-15	2.0-6.0	0.14-0.16	4.5-5.5	Low------------	0.28	5	---
	10-54	18-33	0.6-2.0	0.15-0.17	4.5-5.5	Low------------	0.24		
	54-75	12-27	2.0-6.0	0.14-0.16	4.5-5.5	Low------------	0.28		
Lucy----------	0-31	1-12	6.0-20	0.06-0.10	5.1-5.5	Low------------	0.20	5	.5-1
	31-43	10-30	2.0-6.0	0.10-0.12	4.5-5.5	Low------------	0.24		
	43-65	20-35	0.6-2.0	0.12-0.14	4.5-5.5	Low------------	0.28		
SmB2, SmC2, SmD2, SmE2----------	0-5	5-20	0.6-2.0	0.20-0.22	4.5-5.5	Low------------	0.37	3	.5-2
Sweatman	5-23	35-55	0.2-0.6	0.16-0.20	4.5-5.5	Moderate-------	0.28		
	23-36	35-55	0.2-0.6	0.16-0.20	4.5-5.5	Moderate-------	0.28		
	36-65	---	0.2-0.6	0.10-0.18	4.5-5.5	Moderate-------	----		

See footnote at end of table.

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF SOILS--Continued

Map symbol and soil name	Depth	Clay	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
							K	T	
	In	Pct	In/hr	In/in	pH				Pct
SnE:*									
Sweatman	0-5	5-20	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.37	3	.5-2
	5-23	35-55	0.2-0.6	0.16-0.20	4.5-5.5	Moderate	0.28		
	23-36	35-55	0.2-0.6	0.16-0.20	4.5-5.5	Moderate	0.28		
	36-65	---	0.2-0.6	0.10-0.18	4.5-5.5	Moderate	----		
Smithdale	0-10	2-15	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	---
	10-54	18-33	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	54-75	12-27	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
SuD,* SuE:*									
Sweatman	0-5	5-20	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.37	3	.5-2
	5-23	35-55	0.2-0.6	0.16-0.20	4.5-5.5	Moderate	0.28		
	23-36	35-55	0.2-0.6	0.16-0.20	4.5-5.5	Moderate	0.28		
	36-65	---	0.2-0.6	0.10-0.18	4.5-5.5	Moderate	----		
Urban land.									
SW*	0-5	5-20	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.37	3	.5-2
Sweatman	5-23	35-55	0.2-0.6	0.16-0.20	4.5-5.5	Moderate	0.28		
	23-36	35-55	0.2-0.6	0.16-0.20	4.5-5.5	Moderate	0.28		
	36-65	---	0.2-0.6	0.10-0.18	4.5-5.5	Moderate	----		
SX:*									
Sweatman	0-5	5-20	0.6-2.0	0.20-0.22	4.5-5.5	Low	0.37	3	.5-2
	5-23	35-55	0.2-0.6	0.16-0.20	4.5-5.5	Moderate	0.28		
	23-36	35-55	0.2-0.6	0.16-0.20	4.5-5.5	Moderate	0.28		
	36-65	---	0.2-0.6	0.10-0.18	4.5-5.5	Moderate	----		
Smithdale	0-10	2-15	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28	5	---
	10-54	18-33	0.6-2.0	0.15-0.17	4.5-5.5	Low	0.24		
	54-75	12-27	2.0-6.0	0.14-0.16	4.5-5.5	Low	0.28		
Va	0-12	10-16	0.6-2.0	0.18-0.20	4.5-6.5	Low	0.37	3	2-3
Vimville	12-65	18-35	0.06-0.2	0.16-0.20	5.1-7.8	Moderate	0.32		

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Hydrologic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
					Ft			In			
Aa---------- Annemaine	C	Rare--------	---	---	1.5-2.5	Apparent	Jan-Mar	>60	---	High-----	High.
AbD:*											
Arundel----------	C	None--------	---	---	>6.0	---	---	20-40	Soft	High-----	High.
Sweatman---------	C	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
AL:*											
Arundel----------	C	None--------	---	---	>6.0	---	---	20-40	Soft	High-----	High.
Lauderdale-------	D	None--------	---	---	>6.0	---	---	12-20	Soft	Low------	Moderate.
AR:*											
Arundel----------	C	None--------	---	---	>6.0	---	---	20-40	Soft	High-----	High.
Smithdale--------	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
Williamsville----	C	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
AS:*											
Arundel----------	C	None--------	---	---	>6.0	---	---	20-40	Soft	High-----	High.
Sweatman---------	C	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
Smithdale--------	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
Ba---------- Bigbee	A	Occasional	Brief-----	Jan-Mar	3.5-6.0	Apparent	Jan-Mar	>60	---	Low------	Moderate.
BB:*											
Bigbee-----------	A	Frequent----	Brief-----	Jan-Mar	3.5-6.0	Apparent	Jan-Mar	>60	---	Low------	Moderate.
Bibb---------	C	Frequent----	Brief-----	Dec-May	0.5-1.5	Apparent	Dec-Apr	>60	---	High-----	Moderate.
Bo---------- Bonn Variant	D	Occasional	Brief to long.	Nov-Jun	0-2.0	Perched	Dec-Apr	>60	---	High-----	Low.
CaA---------- Cahaba	B	None--------	Very brief	Nov-Feb	>6.0	---	---	>60	---	Moderate	Moderate.
Da---------- Daleville	D	Occasional	Brief-----	Nov-May	0.5-1.0	Apparent	Nov-May	>60	---	High-----	High.
DJ:*											
Daleville--------	D	Frequent----	Brief-----	Nov-May	0.5-1.0	Apparent	Nov-May	>60	---	High-----	High.
Jena---------	B	Frequent----	Very brief to long.	Dec-Apr	>6.0	---	---	>60	---	Low------	High.

See footnote at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
					Ft			In			
EaB--- Eustis	A	None---	---	---	>6.0	---	---	>60	---	Low---	High.
Ja--- Jena	B	Frequent---	Very brief to long.	Dec-Apr	>6.0	---	---	>60	---	Low---	High.
Ju:*											
Jena---	B	Frequent---	Very brief to long.	Dec-Apr	>6.0	---	---	>60	---	Low---	High.
Urban land.											
Ka--- Kirkville	C	Occasional	Brief---	Jan-Apr	1.5-2.5	Apparent	Jan-Apr	>60	---	Moderate	High.
Kb,* KK:*											
Kirkville---	C	Frequent---	Brief---	Jan-Apr	1.5-2.5	Apparent	Jan-Apr	>60	---	Moderate	High.
Bibb---	C	Frequent---	Brief---	Dec-May	0.5-1.5	Apparent	Dec-Apr	>60	---	High---	Moderate.
LaB--- Lakeland	A	None---	---	---	>6.0	---	---	>60	---	Low---	Moderate.
LH:*											
Lucy---	A	None---	---	---	>6.0	---	---	>60	---	Low---	High.
Heidel---	B	None---	---	---	>6.0	---	---	>60	---	Low---	High.
LS:*											
Lucy---	A	None---	---	---	>6.0	---	---	>60	---	Low---	High.
Smithdale---	B	None---	---	---	>6.0	---	---	>60	---	Low---	Moderate.
MaB, MaC--- McLaurin	B	None---	---	---	>6.0	---	---	>60	---	Low---	Moderate.
OrB, OrC--- Ora	C	None---	---	---	2.0-3.5	Perched	Feb-Apr	>60	---	Moderate	High.
OuD:*											
Ora---	C	None---	---	---	2.0-3.5	Perched	Feb-Apr	>60	---	Moderate	High.
Urban land.											
PtA--- Prentiss	C	None---	---	---	2.0-2.5	Perched	Jan-Mar	>60	---	Moderate	High.
PuA:*											
Prentiss---	C	None---	---	---	2.0-2.5	Perched	Jan-Mar	>60	---	Moderate	High.
Urban land.											

See footnote at end of table.

TABLE 17.--SOIL AND WATER FEATURES--Continued

Map symbol and soil name	Hydrologic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
					Ft			In			
QaA---------- Quitman	C	None--------	---	---	1.5-2.0	Perched	Jan-Mar	>60	---	High-----	Moderate.
RuB, RuC---------- Ruston	B	None--------	---	---	>6.0	---	---	>60	---	Moderate	Moderate.
SaA, SaB, SaC----- Savannah	C	None--------	---	---	1.5-3.0	Perched	Jan-Mar	>60	---	Moderate	High.
SbB:* Savannah---------	C	None--------	---	---	1.5-3.0	Perched	Jan-Mar	>60	---	Moderate	High.
Urban land.											
ScD---------- Smithdale	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
SdE:* Smithdale--------	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
Lucy----------	A	None--------	---	---	>6.0	---	---	>60	---	Low------	High.
SmB2, SmC2, SmD2, SmE2---------- Sweatman	C	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
SnE:* Sweatman---------	C	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
Smithdale--------	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
SuD,* SuE:* Sweatman---------	C	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
Urban land.											
SW*---------- Sweatman	C	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
SX:* Sweatman---------	C	None--------	---	---	>6.0	---	---	>60	---	High-----	High.
Smithdale--------	B	None--------	---	---	>6.0	---	---	>60	---	Low------	Moderate.
Va---------- Vimville	D	Occasional	Brief-----	Nov-May	0.5-1.0	Apparent	Nov-May	>60	---	High-----	Moderate.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 18.--PHYSICAL ANALYSES OF SELECTED SOILS

Soil series and sample number	Horizon	Depth	Particle size distribution							
			Very coarse sand (2.0-1.0 mm)	Coarse sand (1.0-0.5 mm)	Medium sand (0.5-0.25 mm)	Fine sand (0.25-0.10 mm)	Very fine sand (0.10-0.05 mm)	Total sand (2.0-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)
	In		Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct
Arundel	A1	0-4	1.7	2.8	6.4	32.9	23.9	67.7	25.9	6.4
78MS-075-1	B21t	4-10	0.4	0.8	1.8	9.1	13.2	25.3	25.2	49.5
	B22t	10-30	0.4	0.6	1.0	3.6	9.6	15.2	26.6	58.2
	B23t	30-40	0.4	1.0	2.2	3.5	13.1	20.2	35.4	44.4
	Cr	40-45	0.6	1.5	7.0	4.4	16.0	29.5	45.0	25.5
Bonn Variant	A1	0-3	0.6	1.5	15.7	16.4	6.1	40.3	50.7	9.0
76MS-075-1	A2g	3-5	0.1	0.2	1.0	27.1	17.7	46.1	40.0	13.9
	B21tg	5-15	0.0	0.3	0.9	21.6	15.3	38.1	41.6	20.3
	B22tg	15-28	0.0	0.1	0.9	28.9	17.8	47.7	34.5	17.8
	B23tg	28-38	0.0	0.1	0.4	31.6	16.4	48.5	18.3	33.2
	B3g	38-58	0.0	0.1	0.4	34.2	19.2	53.9	29.5	16.6
	C	58-62	0.0	0.4	1.9	64.2	11.4	77.9	12.7	9.4
Lakeland*	A11	0-2	0.5	6.8	54.4	31.1	1.3	94.1	3.1	2.8
78MS-075-2	A12	2-6	0.2	6.5	52.5	33.6	1.5	94.3	3.0	2.7
	C1	6-16	0.0	4.5	53.1	35.7	1.5	94.8	4.7	0.5
	C2	16-50	0.0	5.3	53.4	35.6	1.2	95.5	2.2	2.3
	C3	50-75	0.1	6.5	51.5	39.3	1.1	98.5	1.5	0.0
McLaurin	Ap	0-6	0.3	5.4	27.5	40.4	7.7	81.3	17.2	1.5
78MS-075-3	B21t	6-14	0.1	4.6	22.2	26.5	4.9	58.3	31.6	10.1
	B22t	14-38	0.1	4.5	19.1	23.7	4.5	51.9	30.1	18.0
	B&A'2	38-44	0.1	6.5	26.0	35.9	6.5	75.0	19.7	5.3
	B'2t	44-65	0.2	4.9	22.7	30.6	5.8	64.2	20.4	15.4
Quitman	Ap	0-8	0.4	0.4	2.4	29.5	15.2	47.9	38.6	13.5
78MS-075-4	B21t	8-18	0.1	0.2	1.7	27.8	13.6	43.4	35.8	20.8
	B22t	18-40	0.2	0.2	1.2	24.1	13.3	39.0	33.3	27.7
	B23t	40-65	0.1	0.3	1.1	34.0	14.8	50.3	25.8	23.9

*The silt plus clay appears to be decreasing with depth. If the 16-to 50-inch layer had been divided into 6 inch increments when sampled and the silt plus clay determined for each of these, the silt plus clay would be equal to or more than 5 percent, and the pedon would meet the classification criteria for a coated family.

TABLE 19.--CHEMICAL ANALYSES OF SELECTED SOILS

[Analyzed by the Soil Genesis and Morphology Laboratory of the Mississippi Agricultural and Forestry Experiment Station]

Soil series and sample number	Horizon	Depth	Reaction	Extractable cations				Extractable acidity	Sum of cations	Base saturation
				Ca	Mg	K	Na			
		In	pH	Milliequivalents per 100 grams						Pct
Arundel 78MS-075-1	A1	0-4	4.3	1.9	0.9	0.2	0.1	12.4	15.5	20.0
	B21t	4-10	4.3	7.0	6.1	0.6	0.1	26.3	40.1	34.4
	B22t	10-30	4.1	6.4	5.5	0.7	0.1	32.9	45.6	27.8
	B23t	30-40	4.3	3.2	4.4	1.4	0.6	29.5	39.1	24.5
	Cr	40-45	4.2	2.3	4.1	2.2	0.2	21.7	30.5	28.8
Bonn Variant 76MS-075-1	A1	0-3	4.9	4.8	3.4	0.5	1.7	7.1	17.5	59.4
	A2g	3-5	6.9	2.4	2.6	0.2	1.5	3.1	9.8	68.3
	B21tg	5-15	8.5	4.8	4.3	0.1	3.1	0.2	12.5	98.4
	B22tg	15-28	8.2	9.6	2.1	0.1	1.2	0.2	13.2	98.4
	B23tg	28-38	8.0	9.6	2.1	0.1	1.1	0.1	13.0	99.2
	B3g	38-58	6.8	8.0	1.8	0.2	0.9	0.4	11.3	96.6
	C	58-62	8.4	5.8	1.0	0.2	0.3	0.4	7.7	94.8
Lakeland 78MS-075-2	A11	0-2	4.7	0.1	0.1	0.1	0.1	4.8	5.2	7.7
	A12	2-6	4.8	0.1	0.1	0.0	0.0	4.3	4.5	4.4
	C1	6-16	4.8	0.1	0.0	0.0	0.0	2.8	2.9	3.4
	C2	16-50	4.7	0.1	0.0	0.0	0.0	1.1	1.2	9.1
	C3	50-75	5.1	0.1	0.0	0.0	0.0	1.2	1.3	7.7
McLaurin 78MS-075-3	Ap	0-6	4.6	0.1	0.0	0.1	0.0	2.1	2.7	7.4
	B21t	6-14	5.1	1.4	0.3	0.1	0.0	2.4	4.2	42.8
	B22t	14-38	4.8	1.7	0.9	0.1	0.1	5.7	8.5	32.9
	B&A'2	38-44	4.6	0.1	0.4	0.1	0.0	2.6	3.2	18.7
	B'2t	44-65	4.7	0.5	1.0	0.1	0.0	4.5	6.1	26.2
Quitman 78MS-075-4	Ap	0-8	5.1	5.9	1.1	0.1	0.1	5.6	12.8	56.2
	B21t	8-18	4.9	6.2	1.6	0.1	0.1	5.1	13.1	61.1
	B22t	18-40	4.5	2.5	2.0	0.2	0.1	12.2	17.0	28.2
	B23t	40-65	4.5	1.1	2.7	0.2	0.1	12.5	16.6	24.7

TABLE 20.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Annemaine	Clayey, mixed, thermic Aquic Hapludults
Arundel	Clayey, montmorillonitic, thermic Typic Hapludults
Bibb	Coarse-loamy, siliceous, acid, thermic Typic Fluvaquents
Bigbee	Thermic, coated Typic Quartzipsamments
Bonn Variant	Fine-loamy, siliceous, thermic Glossic Natraqualfs
Cahaba	Fine-loamy, siliceous, thermic Typic Hapludults
Daleville	Fine-loamy, siliceous, thermic Typic Paleaquults
Eustis	Sandy, siliceous, thermic Psammentic Paleudults
Heidel	Coarse-loamy, siliceous, thermic Typic Paleudults
Jena	Coarse-loamy, siliceous, thermic Fluventic Dystrochrepts
Kirkville	Coarse-loamy, siliceous, thermic Fluvaquentic Dystrochrepts
Lakeland	Thermic, coated Typic Quartzipsamments
Lauderdale	Loamy, mixed, thermic, shallow Typic Hapludults
Lucy	Loamy, siliceous, thermic Arenic Paleudults
McLaurin	Coarse-loamy, siliceous, thermic Typic Paleudults
Ora	Fine-loamy, siliceous, thermic Typic Fragiudults
Prentiss	Coarse-loamy, siliceous, thermic Glossic Fragiudults
Quitman	Fine-loamy, siliceous, thermic Aquic Paleudults
Ruston	Fine-loamy, siliceous, thermic Typic Paleudults
Savannah	Fine-loamy, siliceous, thermic Typic Fragiudults
Smithdale	Fine-loamy, siliceous, thermic Typic Paleudults
Sweatman	Clayey, mixed, thermic Typic Hapludults
Vimville	Fine-loamy, siliceous, thermic Typic Glossaqualfs
Williamsville	Clayey, mixed, thermic Typic Hapludults

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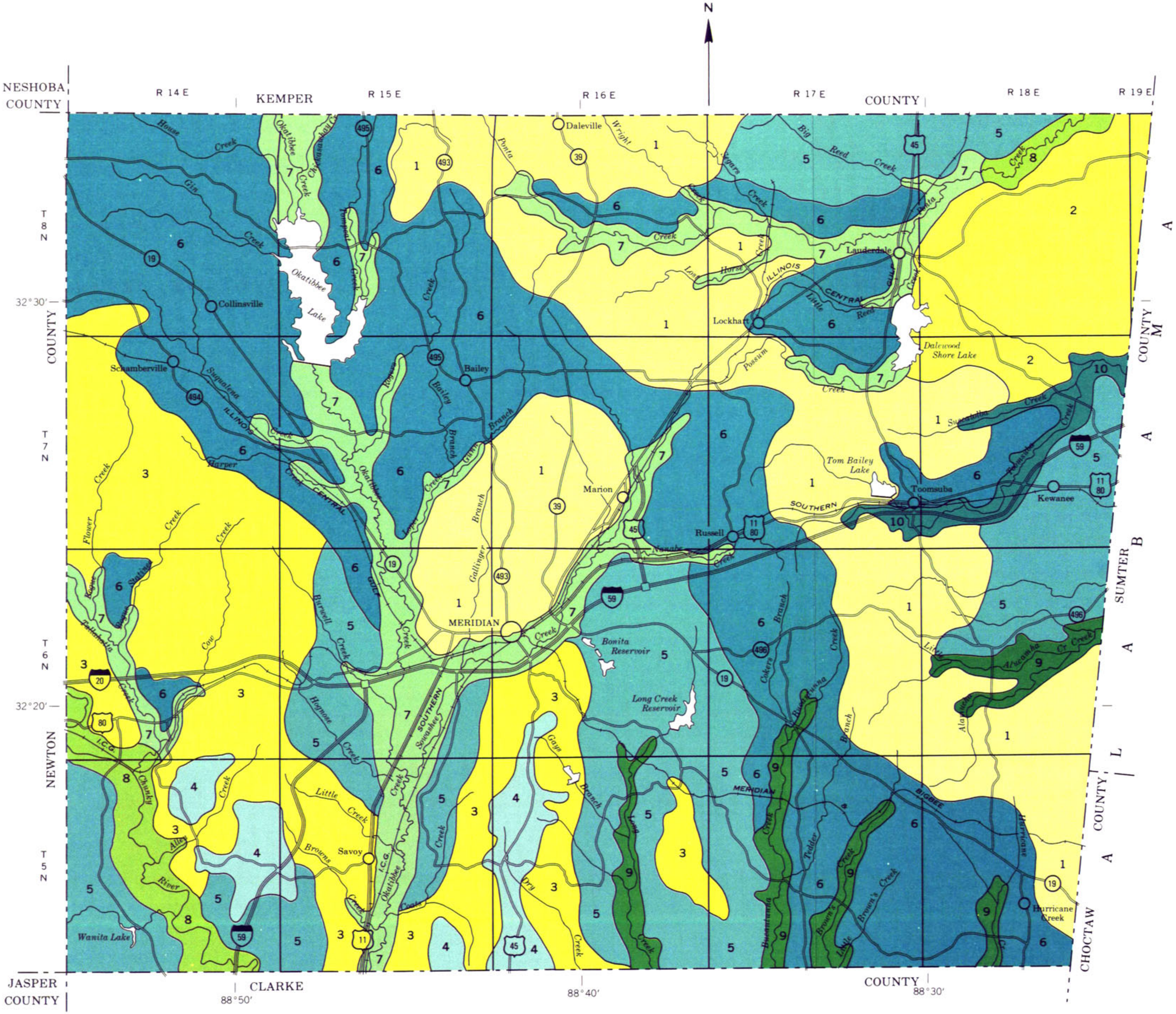


LEGEND

DEEP OR MODERATELY DEEP, WELL DRAINED SOILS; ON HILLY UPLANDS

1 Sweatman: Deep, well drained loamy soils; on steep side slopes and narrow gently sloping ridges

2 McLaurin-Lucy-Heidel: Deep, well drained sandy soils; on steep side slopes and moderately wide gently sloping ridges

3 Arundel-Sweatman-Smithdale: Moderately deep to deep, well drained loamy soils; on steep side slopes and narrow sloping ridges

DEEP, WELL DRAINED AND MODERATELY WELL DRAINED SOILS; ON HILLY UPLANDS

4 Ruston-Smithdale: Deep, well drained loamy soils; on broad gently sloping ridges and strongly sloping side slopes

5 Sweatman-Smithdale: Deep, well drained loamy soils; on moderately wide sloping ridges and steep side slopes

6 Sweatman-Ora-Smithdale: Deep, well drained and moderately well drained loamy soils; on broad gently sloping ridges and steep side slopes

DEEP, EXCESSIVELY DRAINED TO POORLY DRAINED SOILS; ON TERRACES AND FLOOD PLAINS

7 Quitman-Daleville-Jena: Deep, somewhat poorly drained, poorly drained, and well drained loamy soils; on broad nearly level terraces and flood plains

8 Bigbee-Bibb: Deep, excessively drained and poorly drained sandy and loamy soils; on nearly level terraces and flood plains

9 Kirkville-Bibb: Deep, moderately well drained and poorly drained loamy soils; on broad nearly level flood plains

10 Dalevile-Jena-Bonn Variant: Deep, poorly drained and well drained loamy soils; on broad nearly level terraces and flood plains

*The texture given in the descriptive heading refers to the texture of the surface layer of the major soils in each map unit.

Compiled 1981

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MISSISSIPPI AGRICULTURAL AND
FORESTRY EXPERIMENT STATION

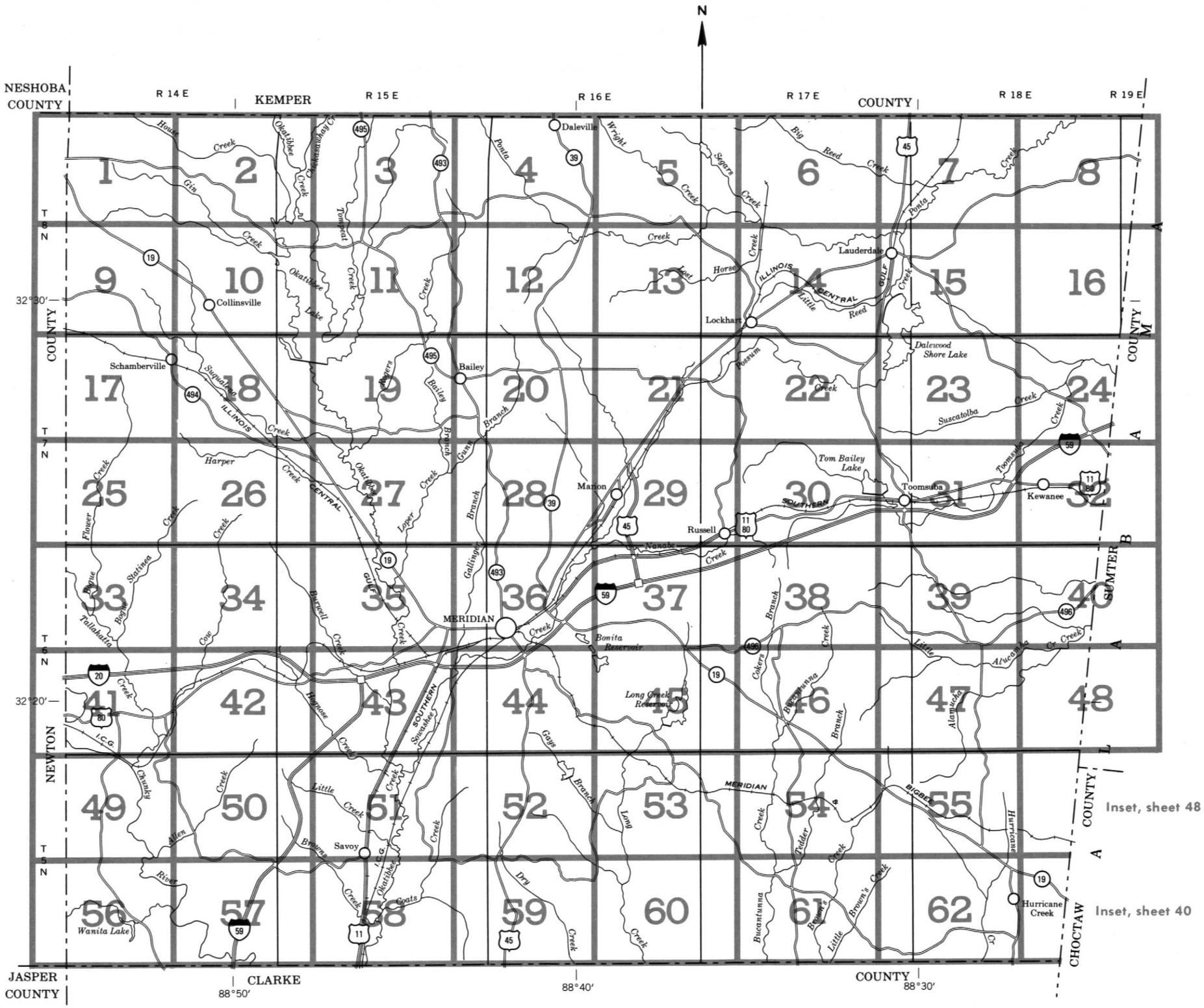
GENERAL SOIL MAP

LAUDERDALE COUNTY, MISSISSIPPI

Scale 1:190,080

1 0 1 2 3 Miles

1 0 3 6 Km



INDEX TO MAP SHEETS
LAUDERDALE COUNTY, MISSISSIPPI

Scale 1:190,080

1 0 1 2 3 Miles

1 0 3 6 Km

SOIL LEGEND

The first letter, always a capital, is the initial letter of the soil name. The second letter is a capital if the mapping unit is broadly defined 1/; otherwise, it is a small letter. The third letter, if used, is always a capital and shows the slope. Symbols without slope letters are those of nearly level soils or miscellaneous areas. A final number, such as 2 in the symbol, shows that the soil is eroded.

SYMBOL	NAME
Aa	Annemaine fine sandy loam
AbD	Arundel-Sweatman complex, 8 to 12 percent slopes
AL	Arundel-Lauderdale association, hilly
AR	Arundel-Smithdale-Williamsville association, hilly
AS	Arundel-Sweatman-Smithdale association, hilly
Ba	Bigbee loamy sand, occasionally flooded
BB	Bigbee-Bibb association, frequently flooded
Bo	Bonn Variant loam, occasionally flooded
CaA	Cahaba fine sandy loam, 0 to 2 percent slopes
Da	Daleville loam, occasionally flooded
DJ	Daleville-Jena association, frequently flooded
EaB	Eustis loamy sand, 0 to 5 percent slopes
Ja	Jena fine sandy loam, frequently flooded
Ju	Jena-Urban land complex, frequently flooded
Ka	Kirkville fine sandy loam, occasionally flooded
Kb	Kirkville-Bibb complex, frequently flooded
KK	Kirkville-Bibb association, frequently flooded
LaB	Lakeland sand, 0 to 5 percent slopes
LH	Lucy-Heidel association, rolling
LS	Lucy-Smithdale association, hilly
MaB	McLaurin loamy sand, 2 to 5 percent slopes
MaC	McLaurin loamy sand, 5 to 8 percent slopes
OrB	Ora fine sandy loam, 2 to 5 percent slopes
OrC	Ora fine sandy loam, 5 to 8 percent slopes
OuD	Ora-Urban land complex, 5 to 12 percent slopes
Pa	Pits
PtA	Prentiss fine sandy loam, 0 to 2 percent slopes
PuA	Prentiss-Urban land complex, 0 to 2 percent slopes
QaA	Quitman loam, 0 to 2 percent slopes
RuB	Ruston fine sandy loam, 2 to 5 percent slopes
RuC	Ruston fine sandy loam, 5 to 8 percent slopes
SaA	Savannah fine sandy loam, 0 to 2 percent slopes
SaB	Savannah fine sandy loam, 2 to 5 percent slopes
SaC	Savannah fine sandy loam, 5 to 8 percent slopes
SbB	Savannah-Urban land complex, 0 to 5 percent slopes
ScD	Smithdale fine sandy loam, 8 to 15 percent slopes
SdE	Smithdale-Lucy complex, 15 to 25 percent slopes
SmB2	Sweatman fine sandy loam, 2 to 5 percent slopes, eroded
SmC2	Sweatman fine sandy loam, 5 to 8 percent slopes, eroded
SmD2	Sweatman fine sandy loam, 8 to 15 percent slopes, eroded
SmE2	Sweatman fine sandy loam, 15 to 35 percent slopes, eroded
SnE	Sweatman-Smithdale complex, 5 to 25 percent slopes
SuD	Sweatman-Urban land complex, 5 to 15 percent slopes
SuE	Sweatman-Urban land complex, 15 to 25 percent slopes
SW	Sweatman association, hilly
SX	Sweatman-Smithdale association, hilly
Ur	Urban land
Va	Vimville loam, occasionally flooded

1/ The composition of these units is more variable than that of others in the survey area but has been controlled well enough to be interpreted for the expected use of the soils.

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline
- AD HOC BOUNDARY (label)
- Small airport, airfield, park, oilfield, cemetery, or flood pool

STATE COORDINATE TICK

LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS

- Interstate
- Federal
- State
- County, farm or ranch

RAILROAD

POWER TRANSMISSION LINE (normally not shown)

PIPE LINE (normally not shown)

FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small

PITS

- Gravel pit
- Mine or quarry

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label)
- Located object (label)
- Tank (label)
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
  - Double-line (label)
  - Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial
- Intermittent

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot

SPECIAL SYMBOLS FOR SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS

ESCARPMENTS

- Bedrock (points down slope)
- Other than bedrock (points down slope)

SHORT STEEP SLOPE

GULLY

DEPRESSION OR SINK

SOIL SAMPLE SITE (normally not shown)

MISCELLANEOUS

- Blowout
- Clay spot
- Gravelly spot
- Gumbo, slick or scabby spot (sodic)
- Dumps and other similar non soil areas
- Prominent hill or peak
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip (tips point upslope)
- Stony spot, very stony spot

LAUDERDALE COUNTY, MISSISSIPPI NO. 1

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 2

KEMPER COUNTY

R. 14 E. R. 15 E.

T. 8 N.

OKATIBBEE LAKE

Hodge Branch

House Creek

Okatibbee Creek

Chickasahay Creek

Martin

(Joins sheet 1)

(Joins sheet 3)

(Joins sheet 10)

1 Kilometer

5,000 Feet

Scale 1:20000

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LAUDERDALE COUNTY, MISSISSIPPI NO. 2

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LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 4

4

N

R. 15 E. R. 16 E.

KEMPER COUNTY

T. 8 N.

(Joins sheet 3)

(Joins sheet 12)

(Joins sheet 5)

Scale - 1:20000

0 5,000 Feet

0 1 Kilometer

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LAUDERDALE COUNTY, MISSISSIPPI NO. 4

LAUDERDALE COUNTY, MISSISSIPPI NO. 5

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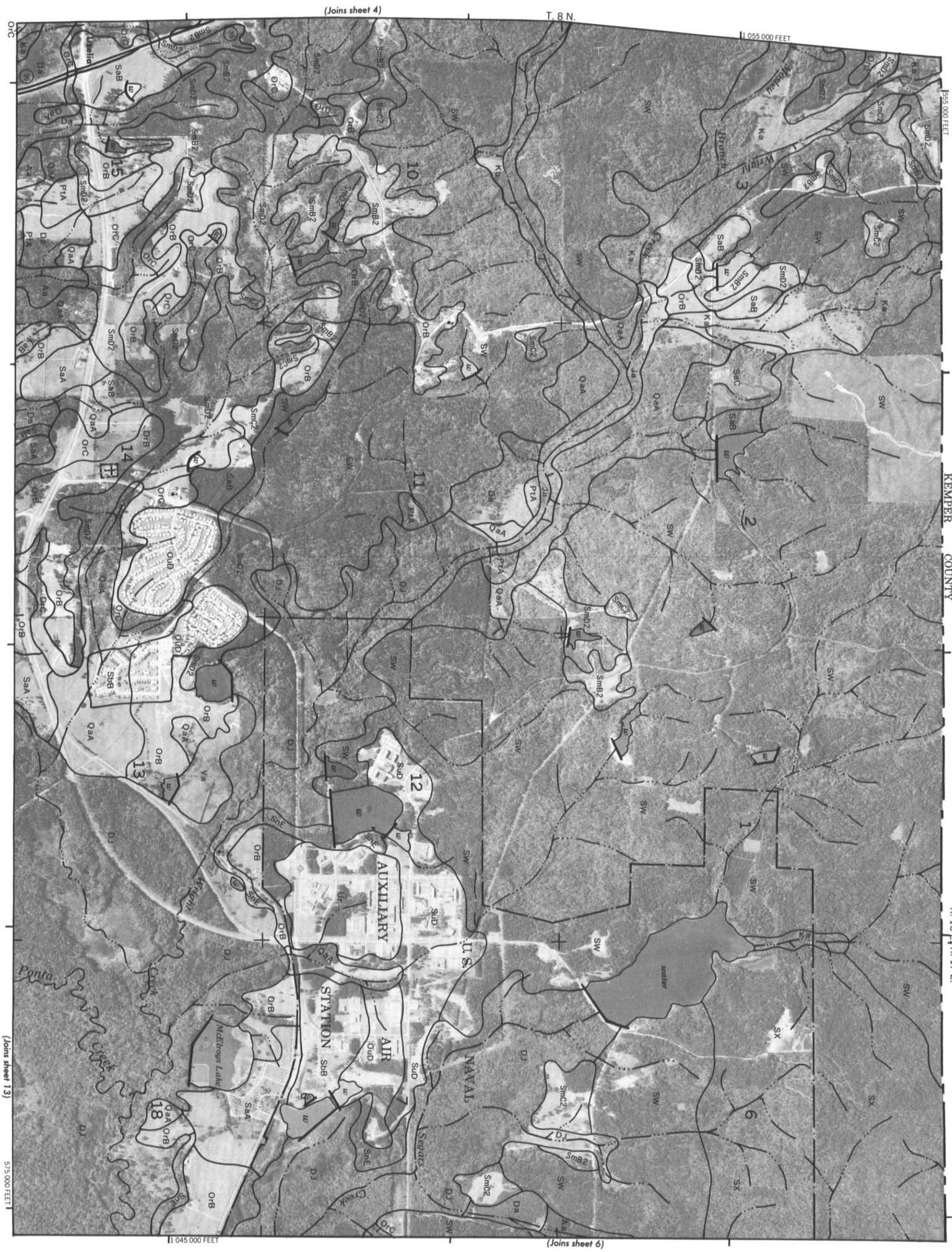


LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 5

LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 6

6

N

R. 17 E. KEMPER COUNTY

595 000 FEET

1 055 000 FEET

T. 8 N.

(Joins sheet 5)

(Joins sheet 7)

(Joins sheet 14)

580 000 FEET

1 045 000 FEET

McCain Field

U.S. NAVAL AUXILIARY AIR STATION

Big Reed Creek

5 000 Feet

1 Kilometer

Scale - 1:20000

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 6

LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 7

LAUDERDALE COUNTY, MISSISSIPPI NO. 7

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

R. 17 E. R. 18 E.

KEMPER COUNTY

600 000 FEET

1 055 000 FEET

T. 8 N.

(Joins sheet 6)

(Joins sheet 8)

(Joins sheet 15)

615 000 FEET

1 045 000 FEET

U.S. NAVAL AUXILIARY AIR STATION

Reed Creek

Ponta Creek

ILLINOIS CENTRAL

Scale · 1:20000

5,000 Feet

1 Kilometer

LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 8

8

N

Scale - 1:20000

5,000 Feet

1 Kilometer

KEMPER COUNTY

R. 18 E. R. 19 E. 635 000 FEET

1 034 000 FEET

T. 8 N.

ALABAMA

SUMTER COUNTY

(Joins sheet 7)

1 045 000 FEET

620 000 FEET (Joins sheet 16)

Ponta Creek

Ponta Creek

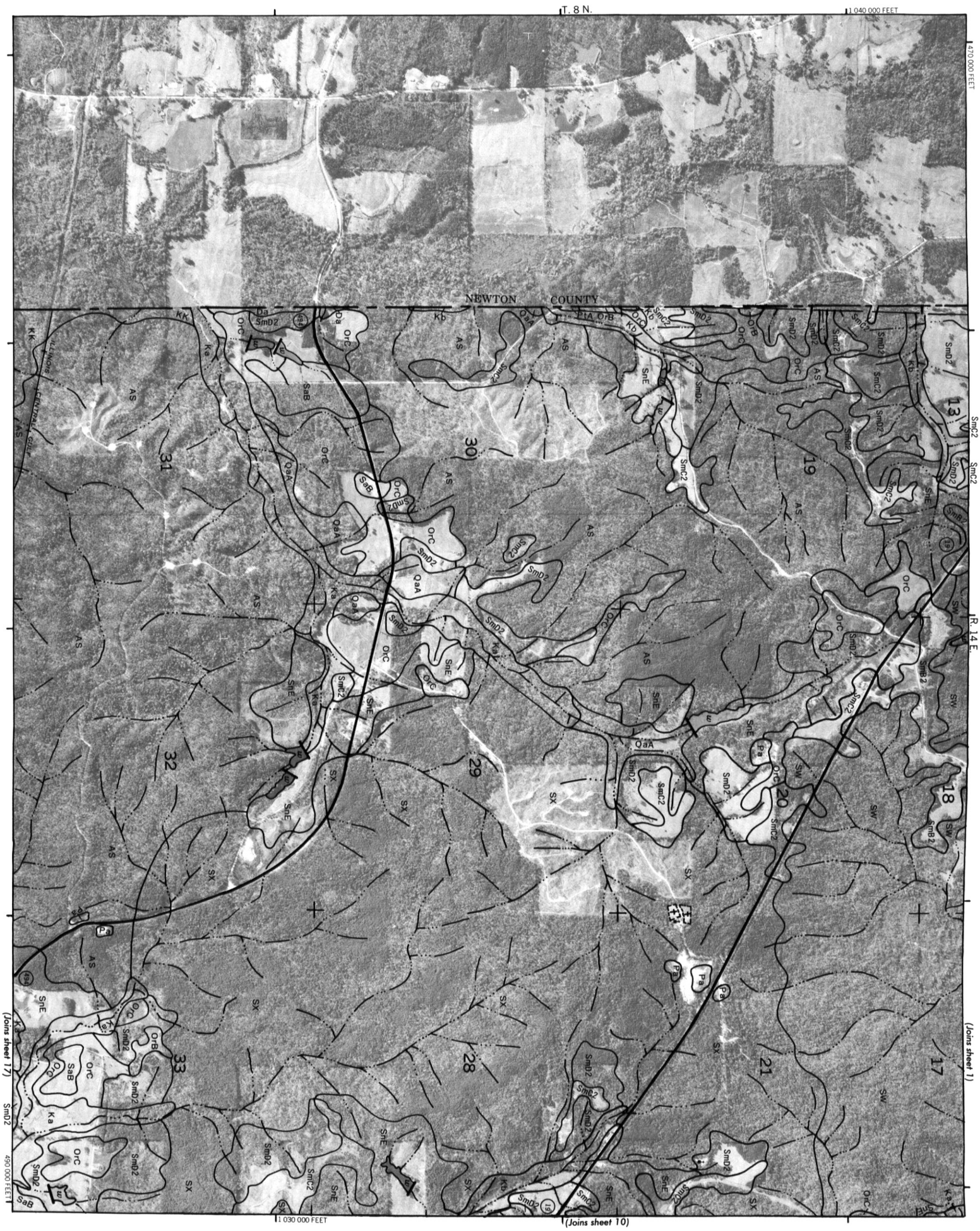
SX SW BB Ba Ka QaA Aa SaB SmB2 SmC2 SmD2 RuB RuC SdE ScD MaC MaB EaB LaB LH Kb

1 2 3 6 7 10 11 12 13 14 15 18

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

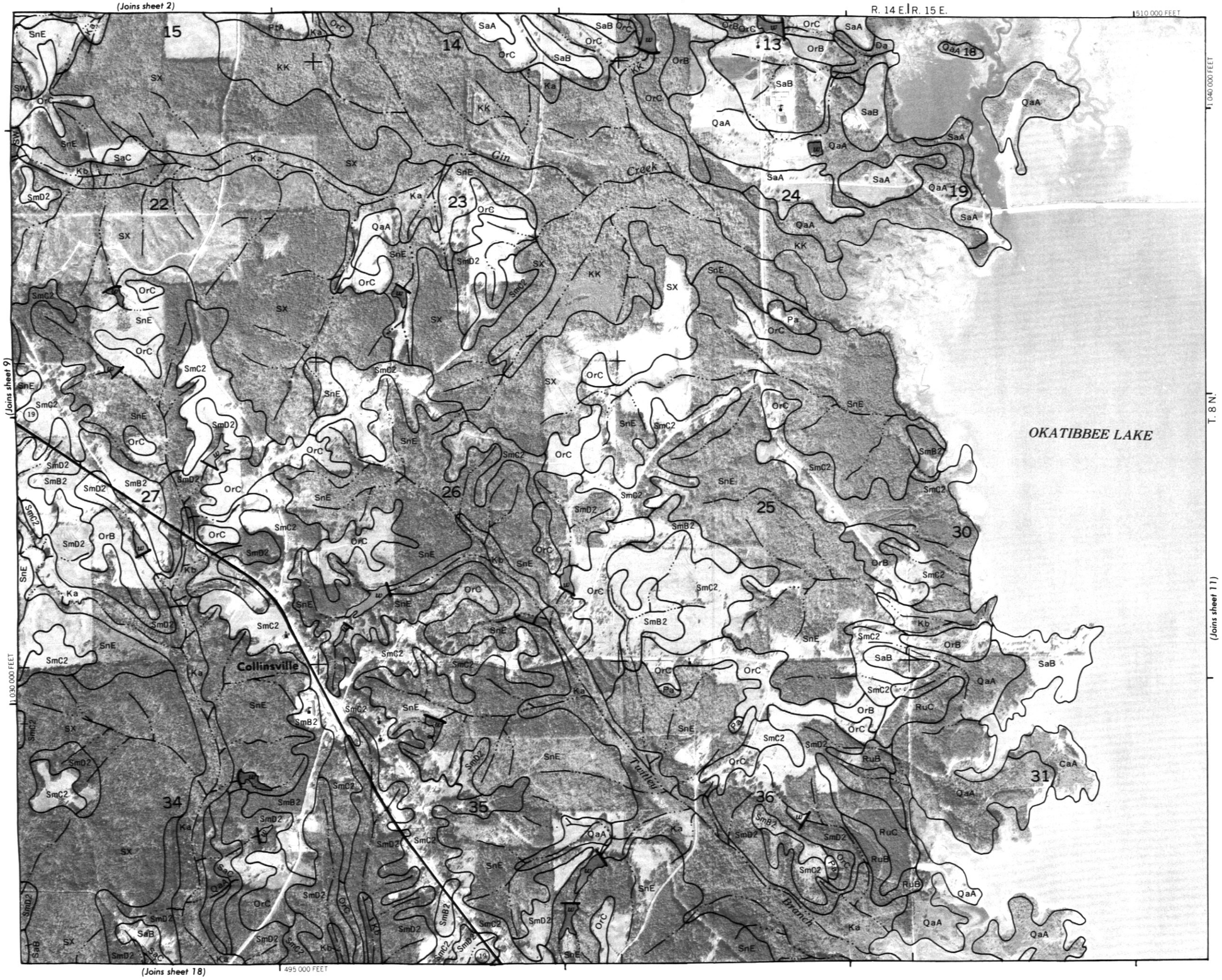
LAUDERDALE COUNTY, MISSISSIPPI NO. 8

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 9

LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 10



10

N

5,000 Feet

1 Kilometer

Scale - 1:20000

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 10

LAUDERDALE COUNTY, MISSISSIPPI NO. 11

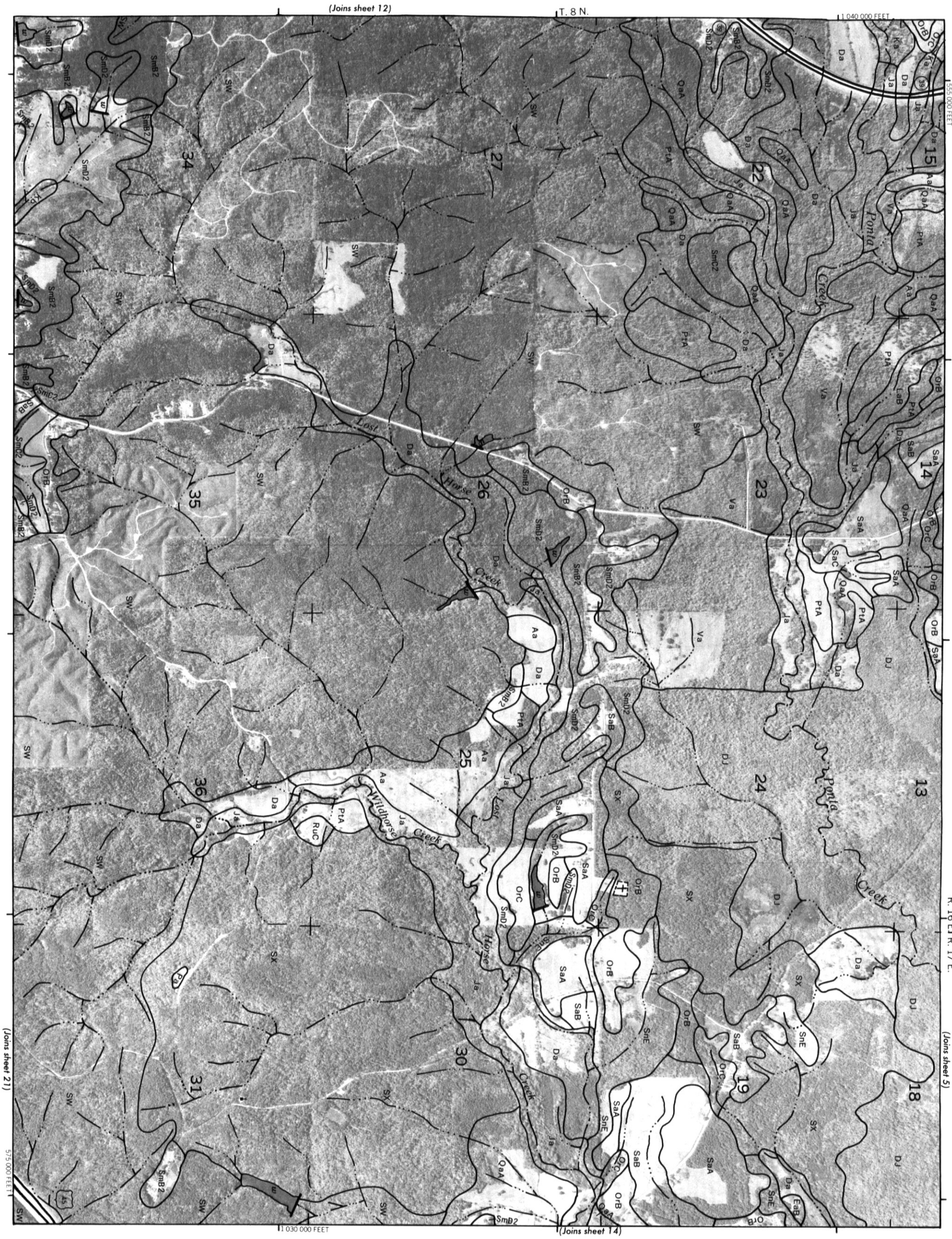
This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 11

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 13

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 14

N

5,000 Feet

1 Kilometer

Scale - 1:20000

(Joins sheet 6)

R. 17 E.

595 000 FEET

1 040 000 FEET

T. 8 N.

(Joins sheet 13)

1 030 000 FEET

(Joins sheet 15)

(Joins sheet 22)

580 000 FEET

U.S. NAVAL AUXILIARY AIR STATION

Lockhart

Little Reed Creek

DALEWOOD SHORES LAKE

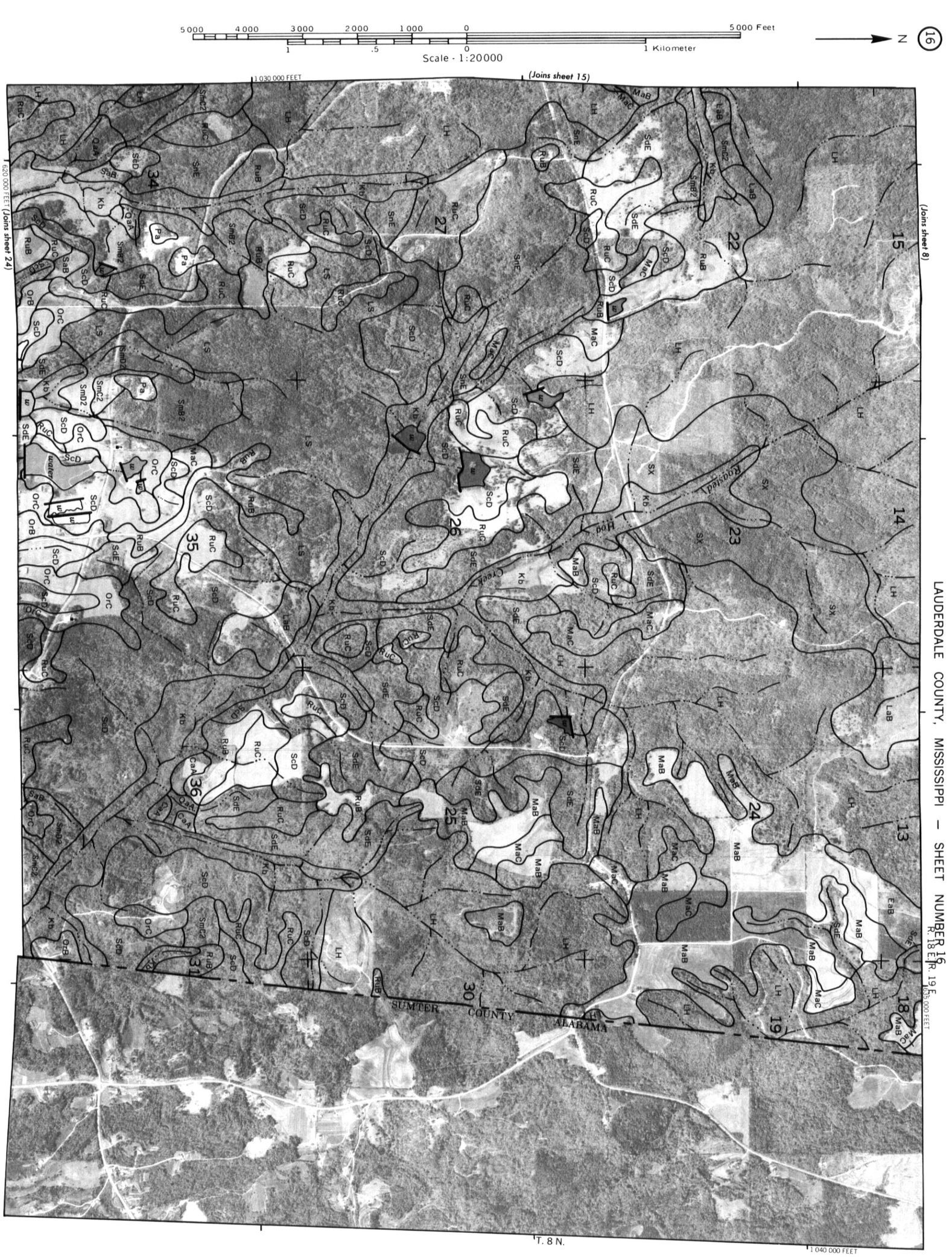
ILLINOIS CENTRAL

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 14

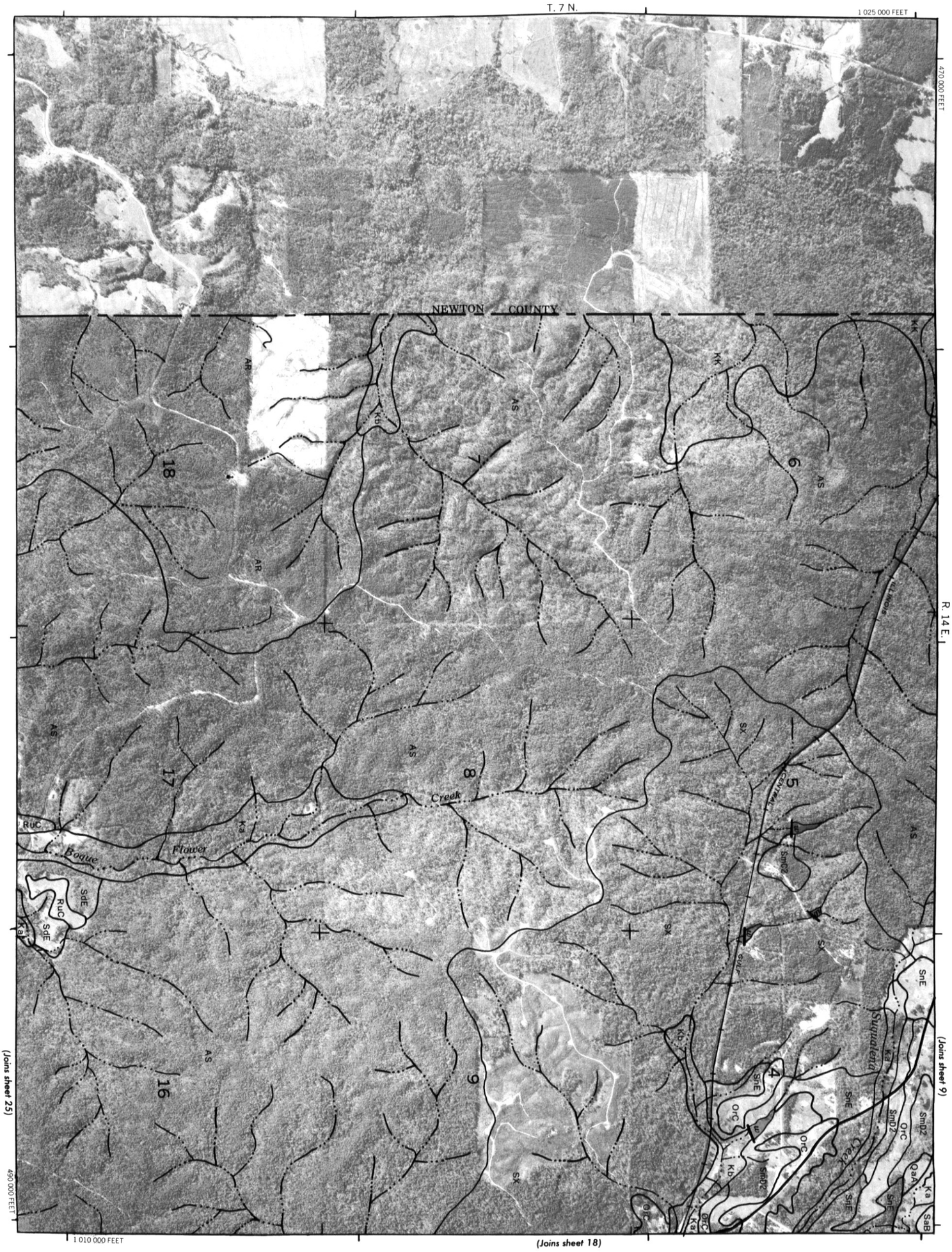
This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 15



This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

17

N

(Joins sheet 10)

R. 14 E. | R. 15 E.

510 000 FEET

1 025 000 FEET

T. 7 N.

OKATIBBEE LAKE

Schamberville

Walker Line

Central Illinois

Suqualena

(Joins sheet 17)

(Joins sheet 19)

1 110 000 FEET

495 000 FEET

(Joins sheet 26)

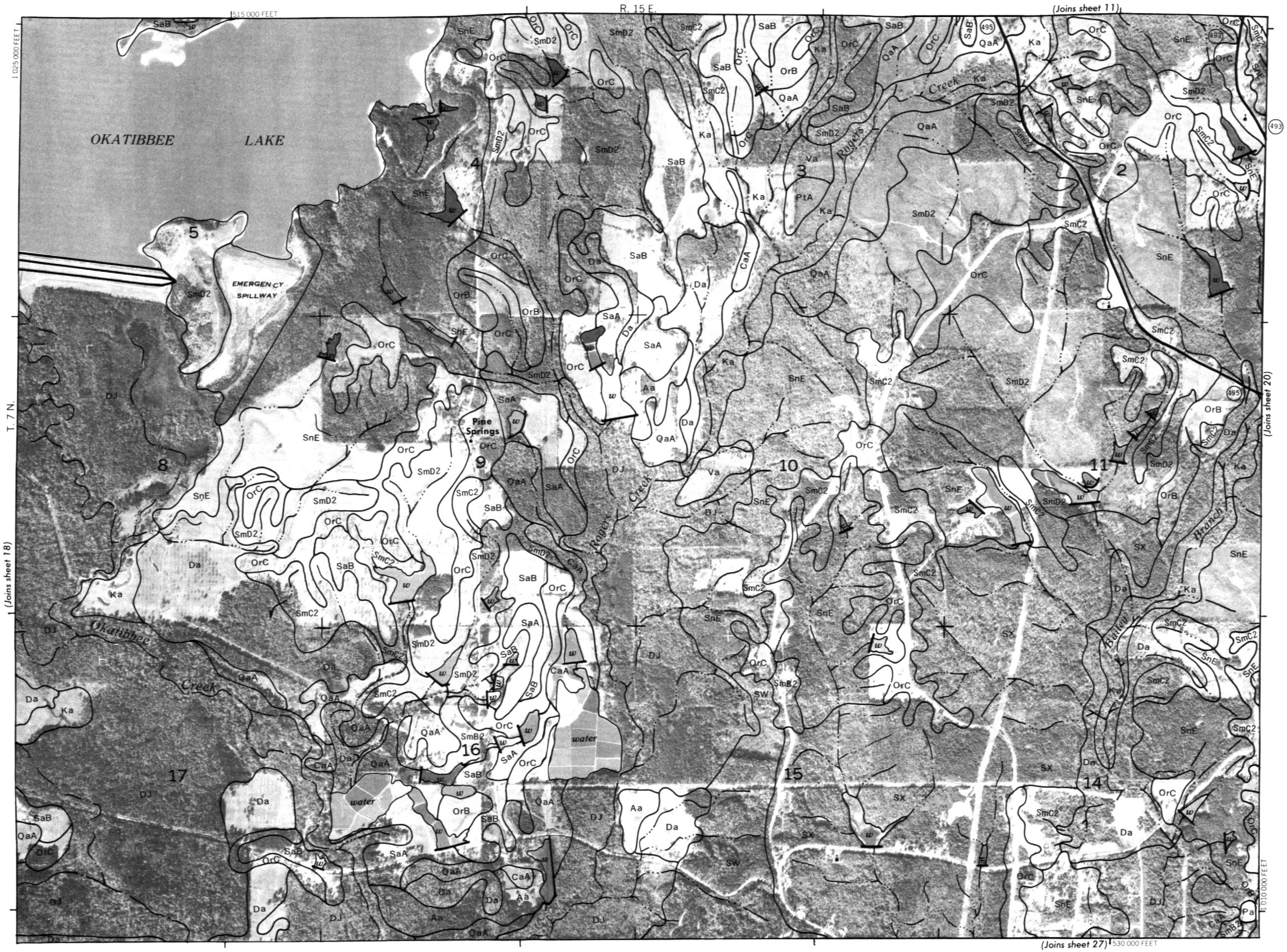
Scale · 1:20000

0 5,000 Feet

0 1 Kilometer

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 18



LAUDERDALE COUNTY, MISSISSIPPI NO. 19

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

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LAUDERDALE COUNTY, MISSISSIPPI NO. 20

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5 000 4 000 3 000 2 000 1 000 0 5 000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 23

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

1600 000 FEET

R. 17 E. R. 18 E.

(Joins sheet 15)

1 025 000 FEET

T. 7 N.

DALEWOOD SHORE LAKE

Creek

Sucatolba

(Joins sheet 22)

(Joins sheet 24)

615 000 FEET (Joins sheet 31)

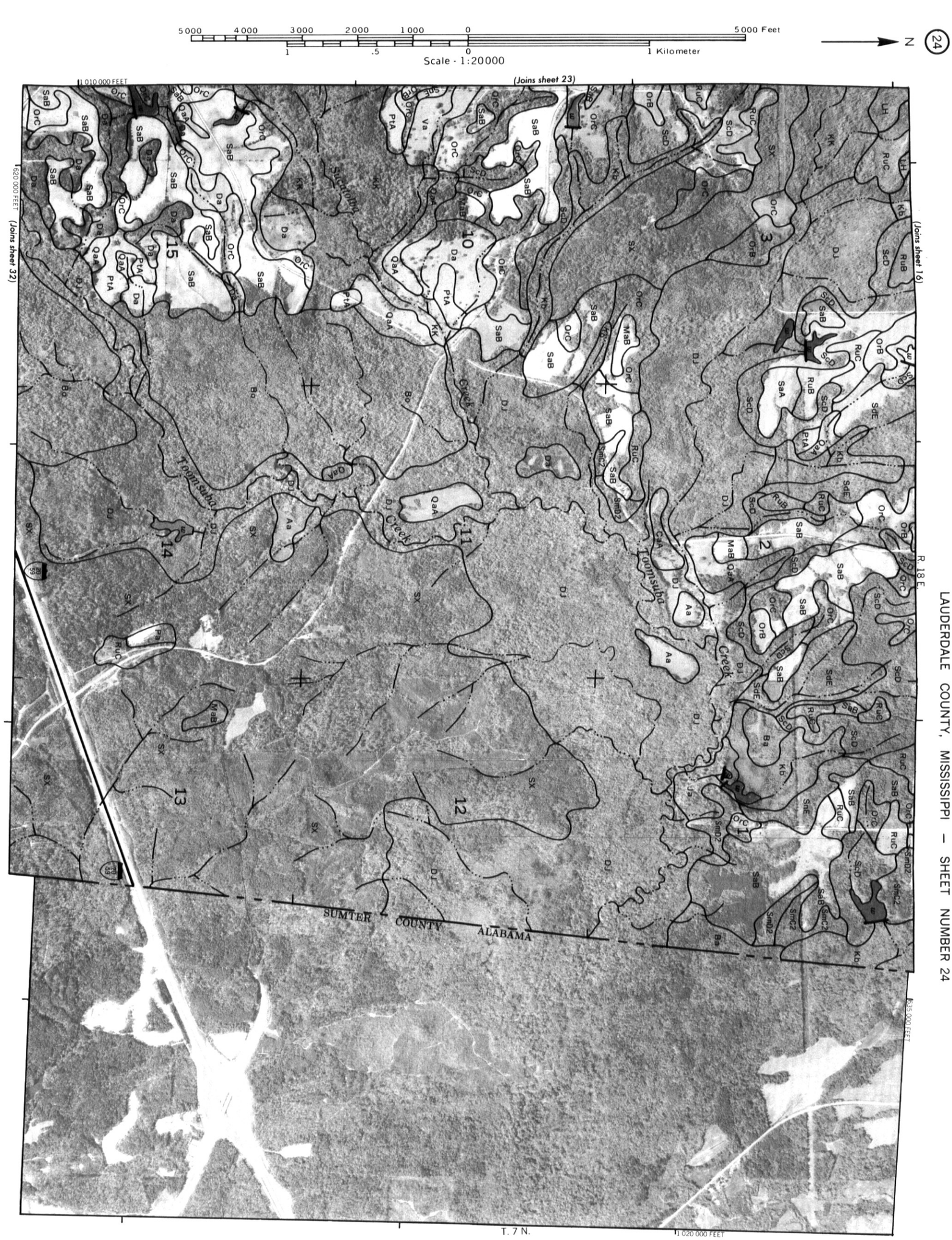
010 000 FEET

N

5 000 Feet

1 Kilometer

Scale - 1:20000

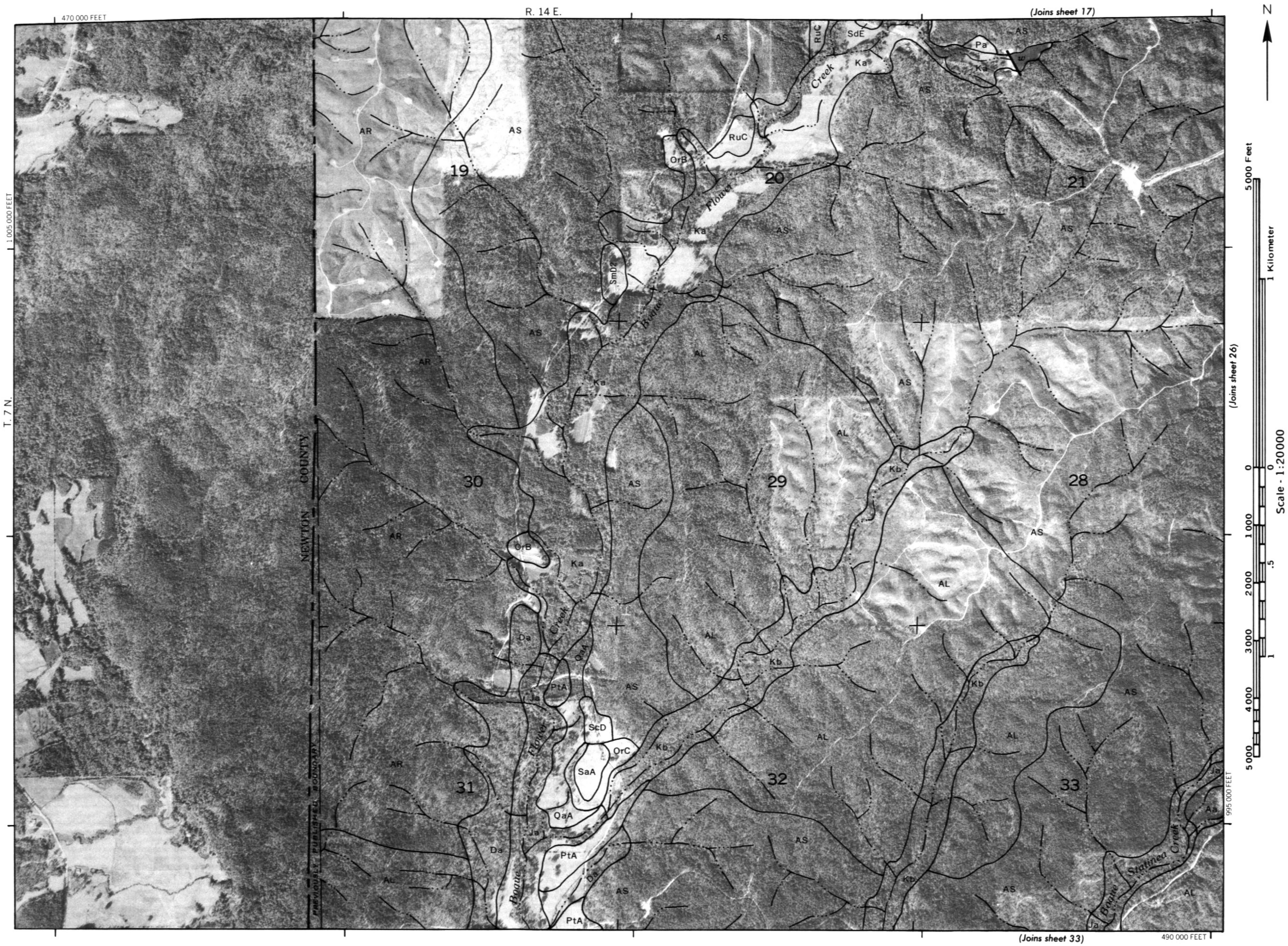


LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 24

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 25

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 26

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 28

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

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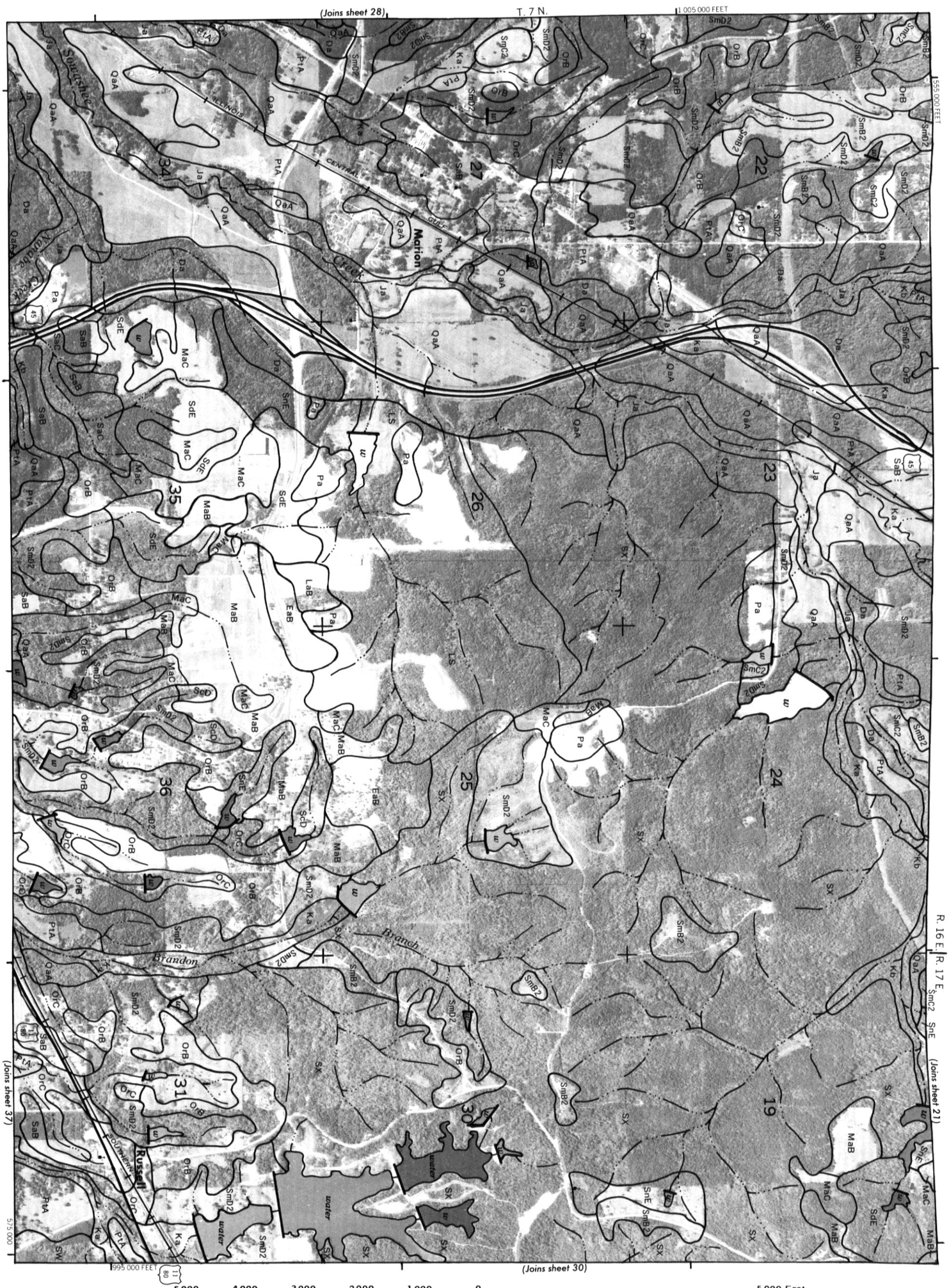

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 30

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

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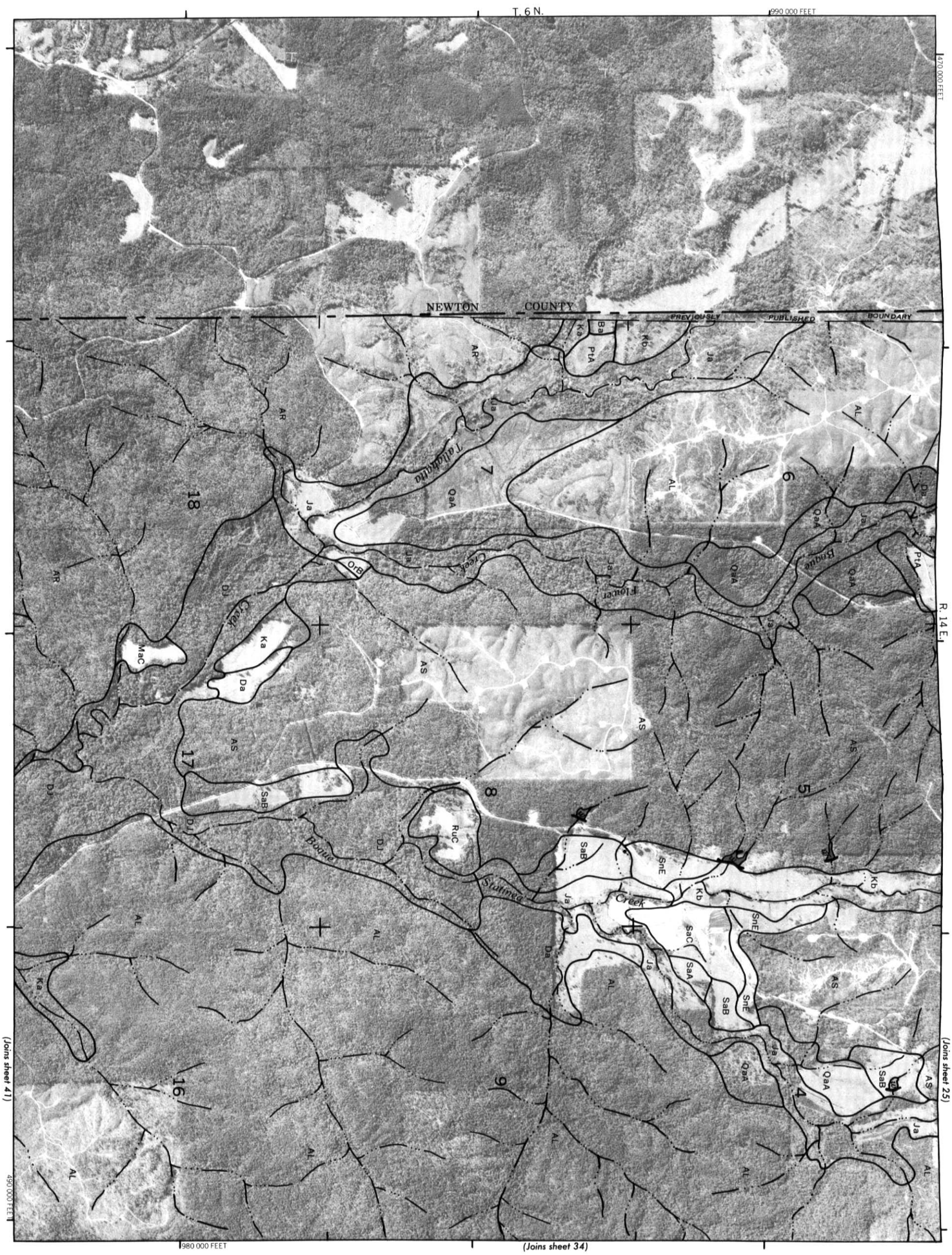
LAUDERDALE COUNTY, MISSISSIPPI NO. 33

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



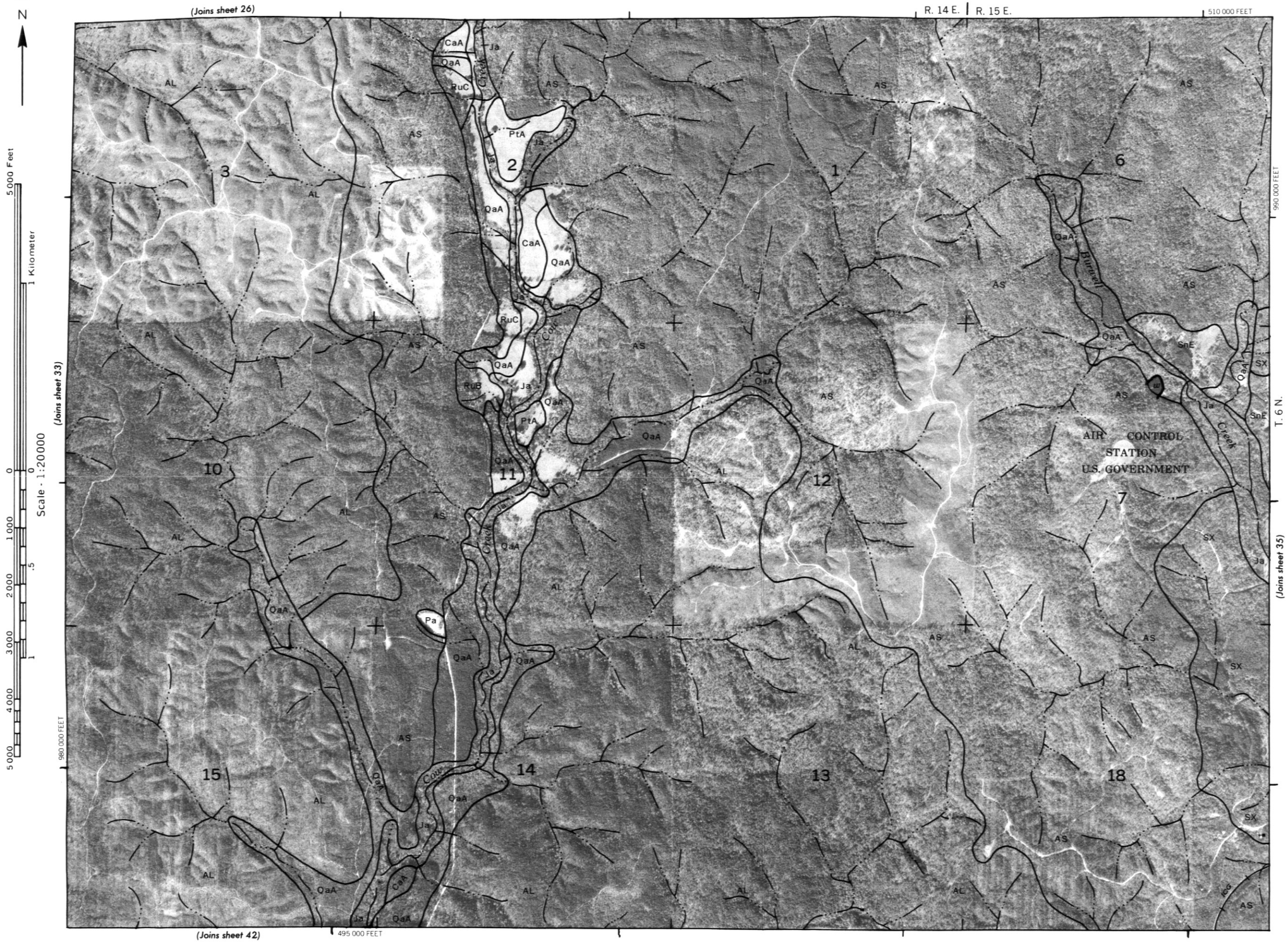
5000 4000 3000 2000 1000 0 5000 Feet

1 .5 0 1 Kilometer

Scale - 1:20000

N

LAUDERDALE COUNTY, MISSISSIPPI – SHEET NUMBER 33



This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 34

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

N

(Joins sheet 28)

R. 15 E. R. 16 E.

550 000 FEET

T. 6 N.

(Joins sheet 35)

(Joins sheet 37)

980 000 FEET

990 000 FEET

(Joins sheet 44)

535 000 FEET

MERIDIAN
(county seat)

Bonita Reservoir

Scale - 1:20000

5 000 Feet

1 Kilometer

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 36

LAUDERDALE COUNTY, MISSISSIPPI NO. 37

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

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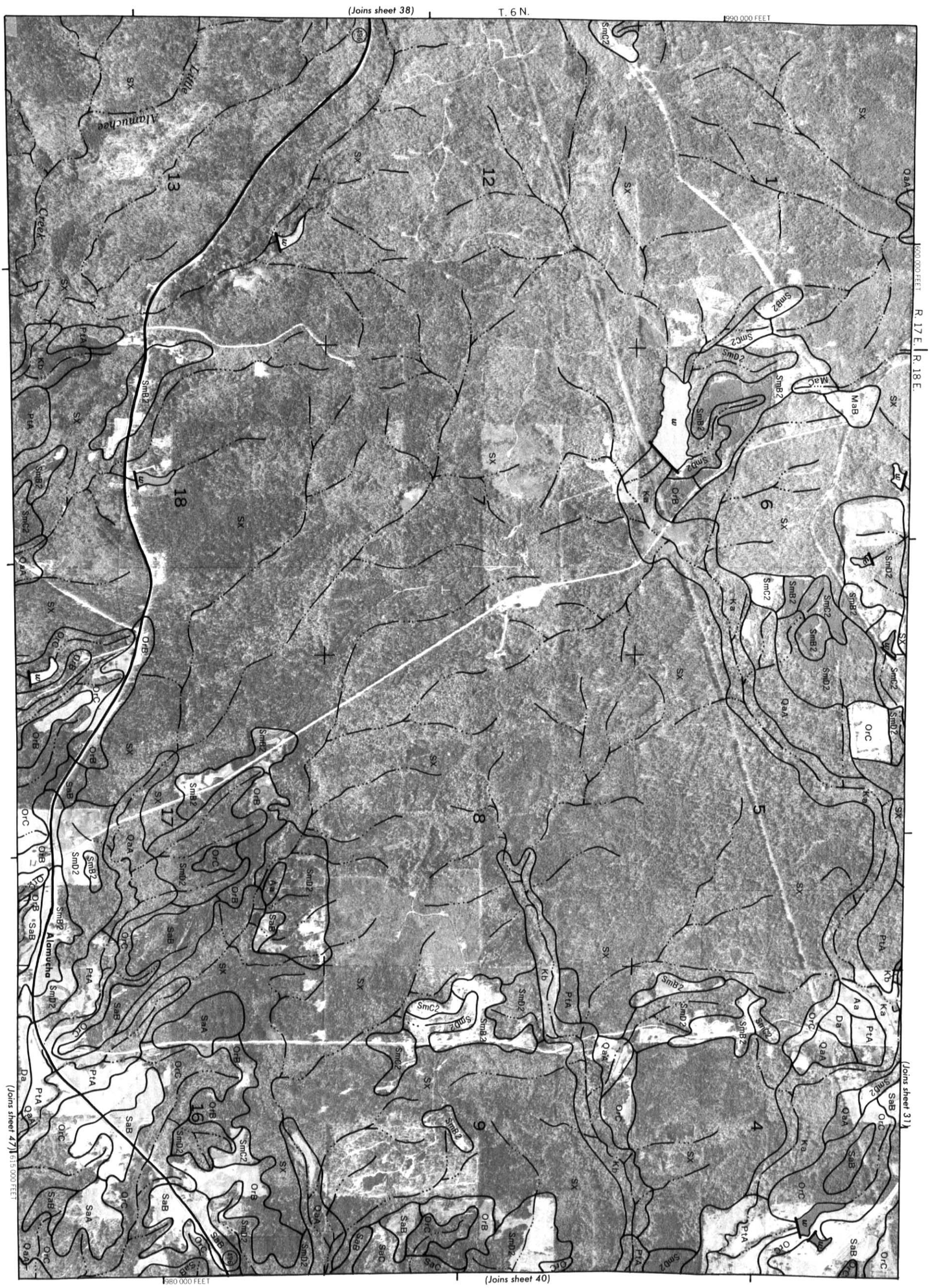


(40)

N

Scale · 1:20000

5000 Feet 0 1 Kilometer

0 .5 0

1000 2000 3000 4000 5000

1

(Joins sheet 32) R. 18 E. 630 000 FEET

990 000 FEET

(Joins sheet 39)

T. 6 N.

ALABAMA

SUMTER COUNTY

980 000 FEET

620 000 FEET (Joins sheet 48)

(Joins inset, sheet 48) R. 18 E. 625 000 FEET

945 000 FEET

(Joins sheet 62)

ALABAMA T. 5 N.

CHOCTAW COUNTY

935 000 FEET

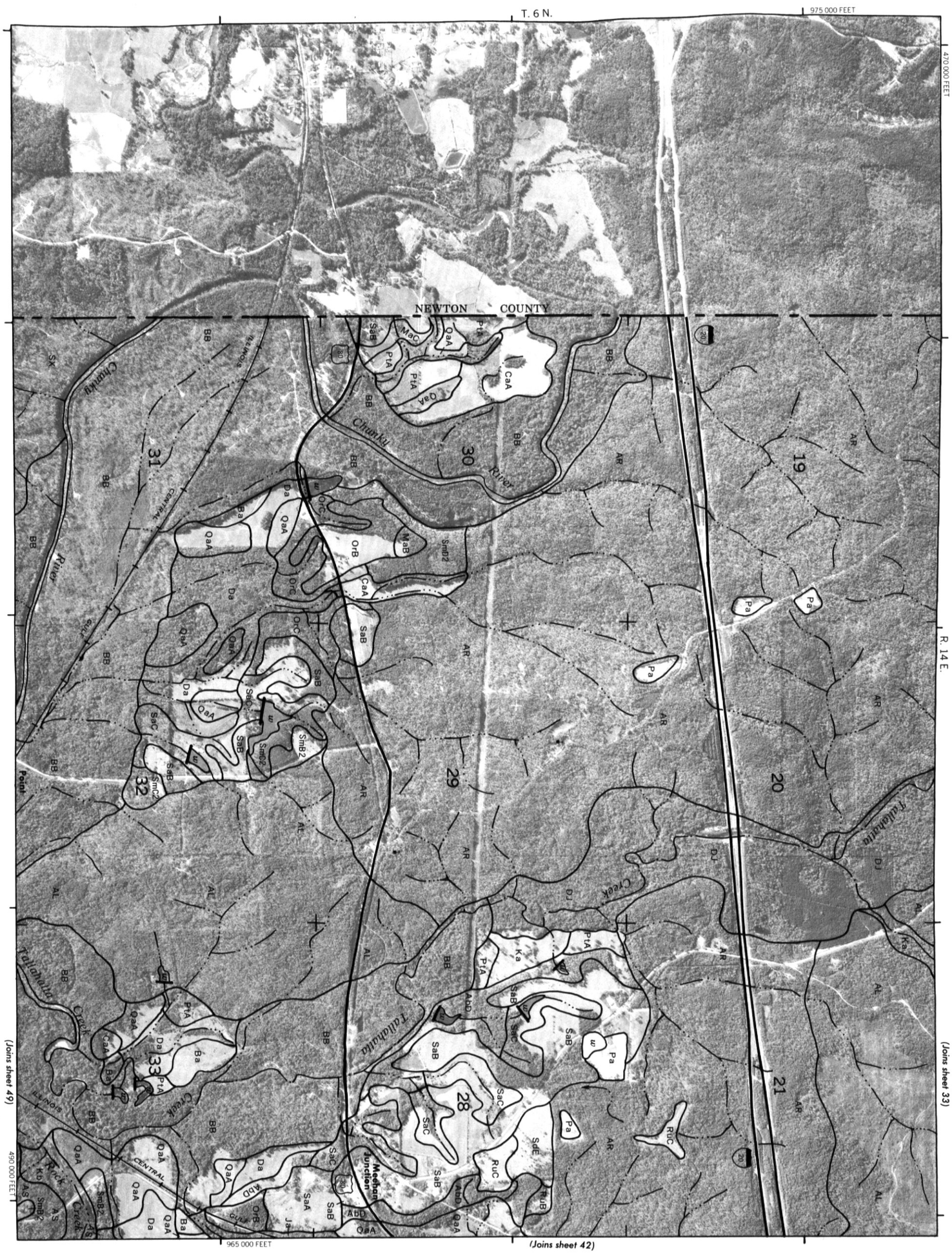
620 000 FEET CLARKE COUNTY

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

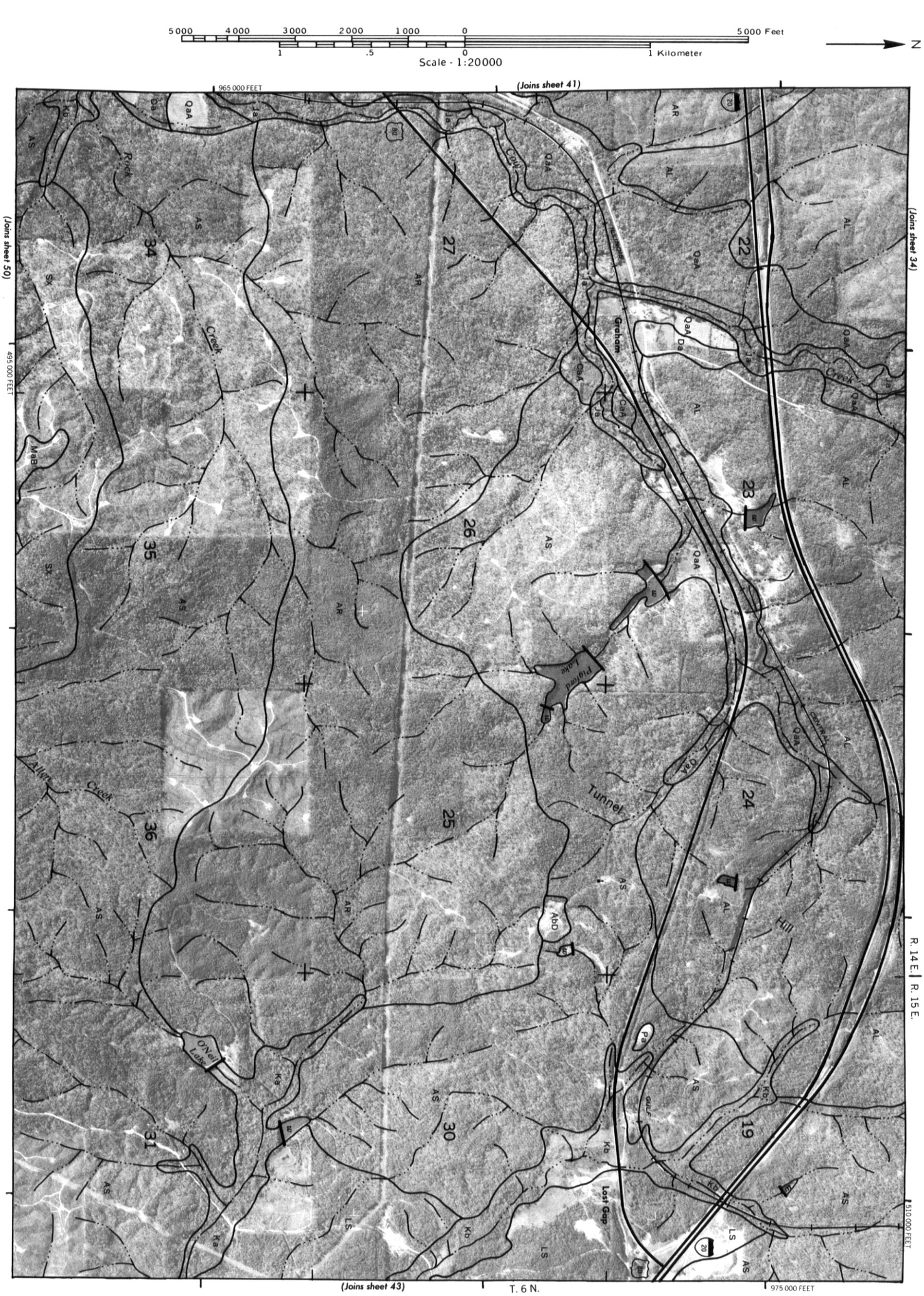
LAUDERDALE COUNTY, MISSISSIPPI NO. 40

LAUDERDALE COUNTY, MISSISSIPPI NO. 41

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 41



This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 42

LAUDERDALE COUNTY, MISSISSIPPI NO. 43

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

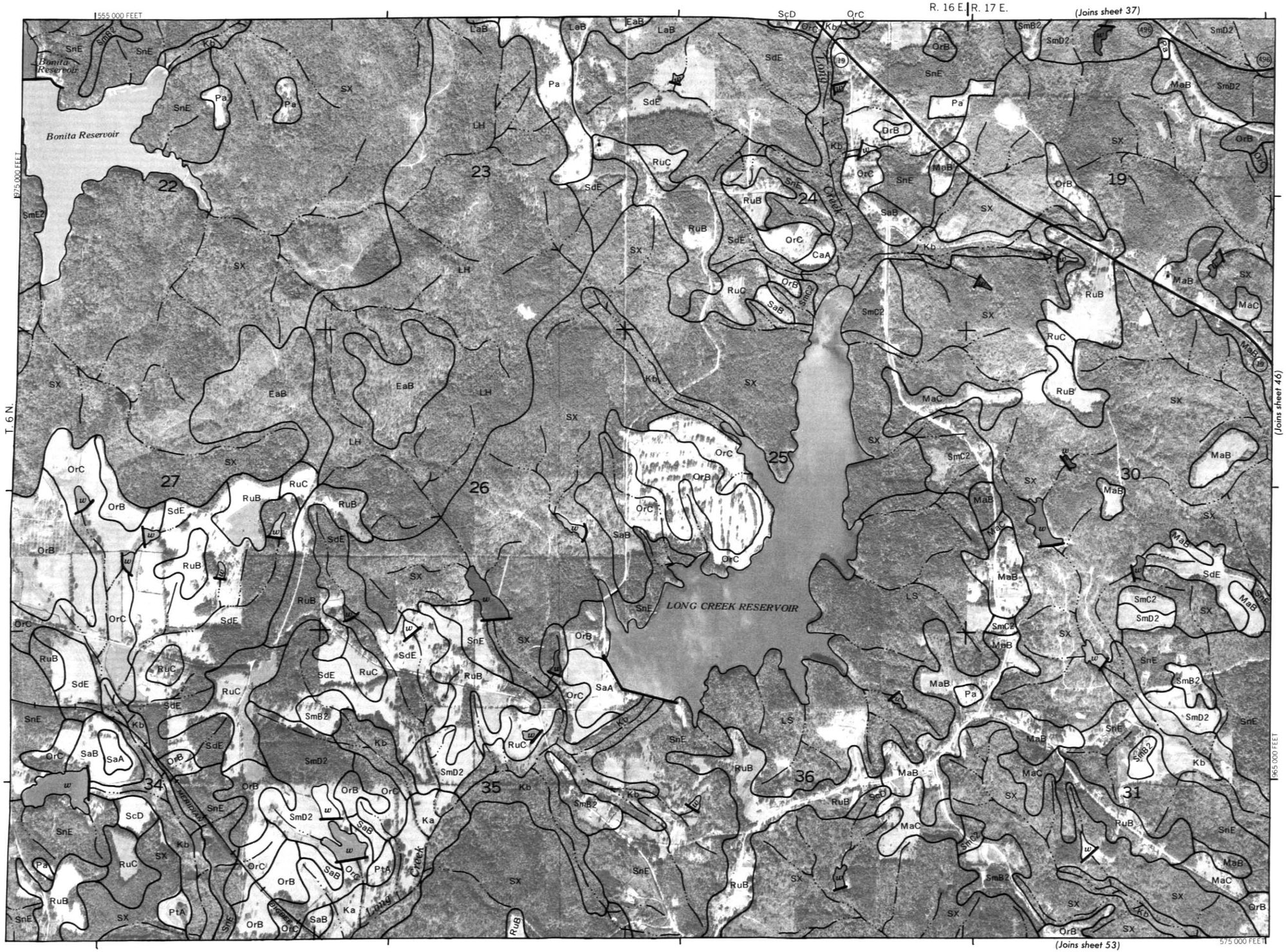
LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 44

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 44

LAUDERDALE COUNTY, MISSISSIPPI NO. 45

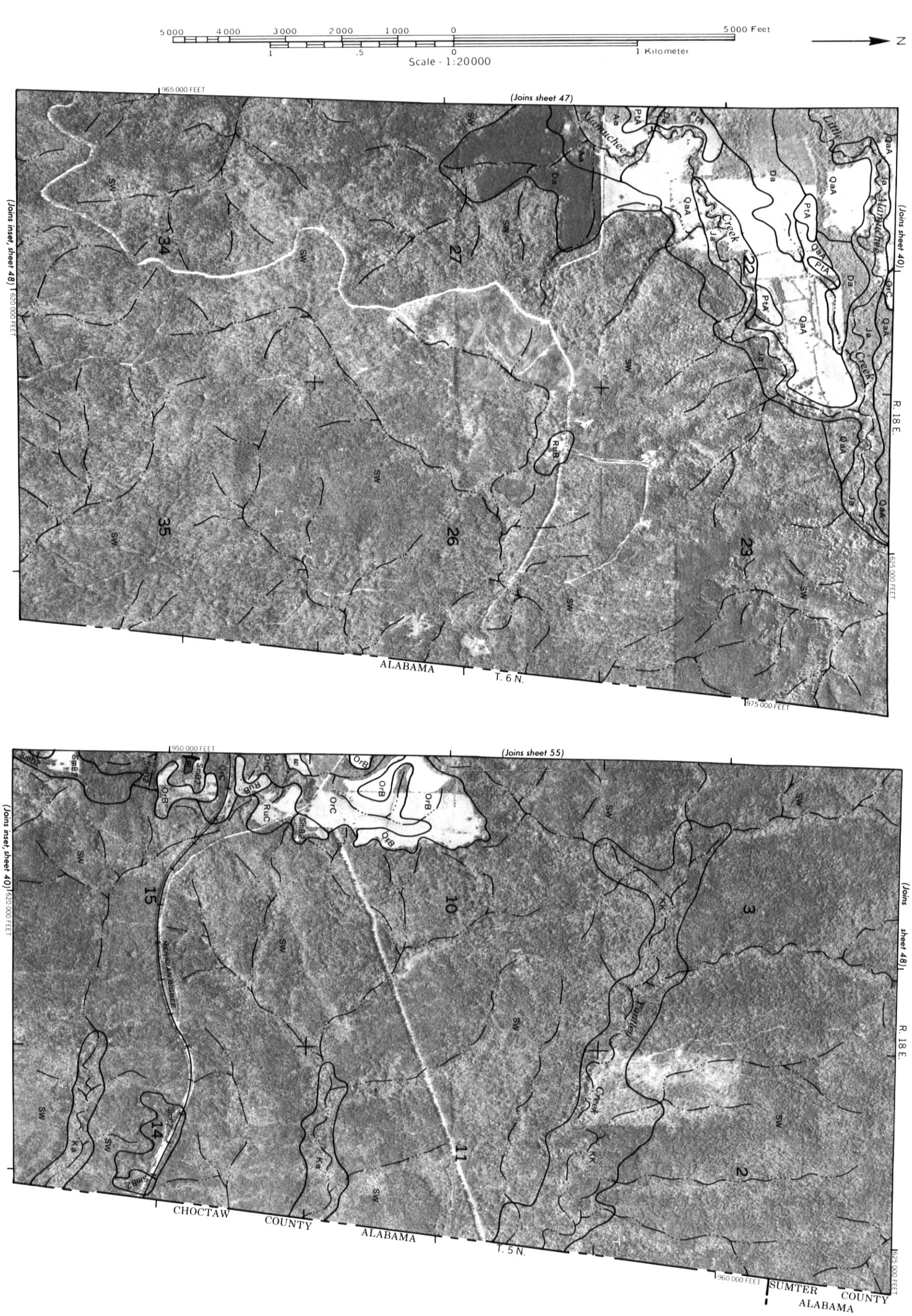
This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 46

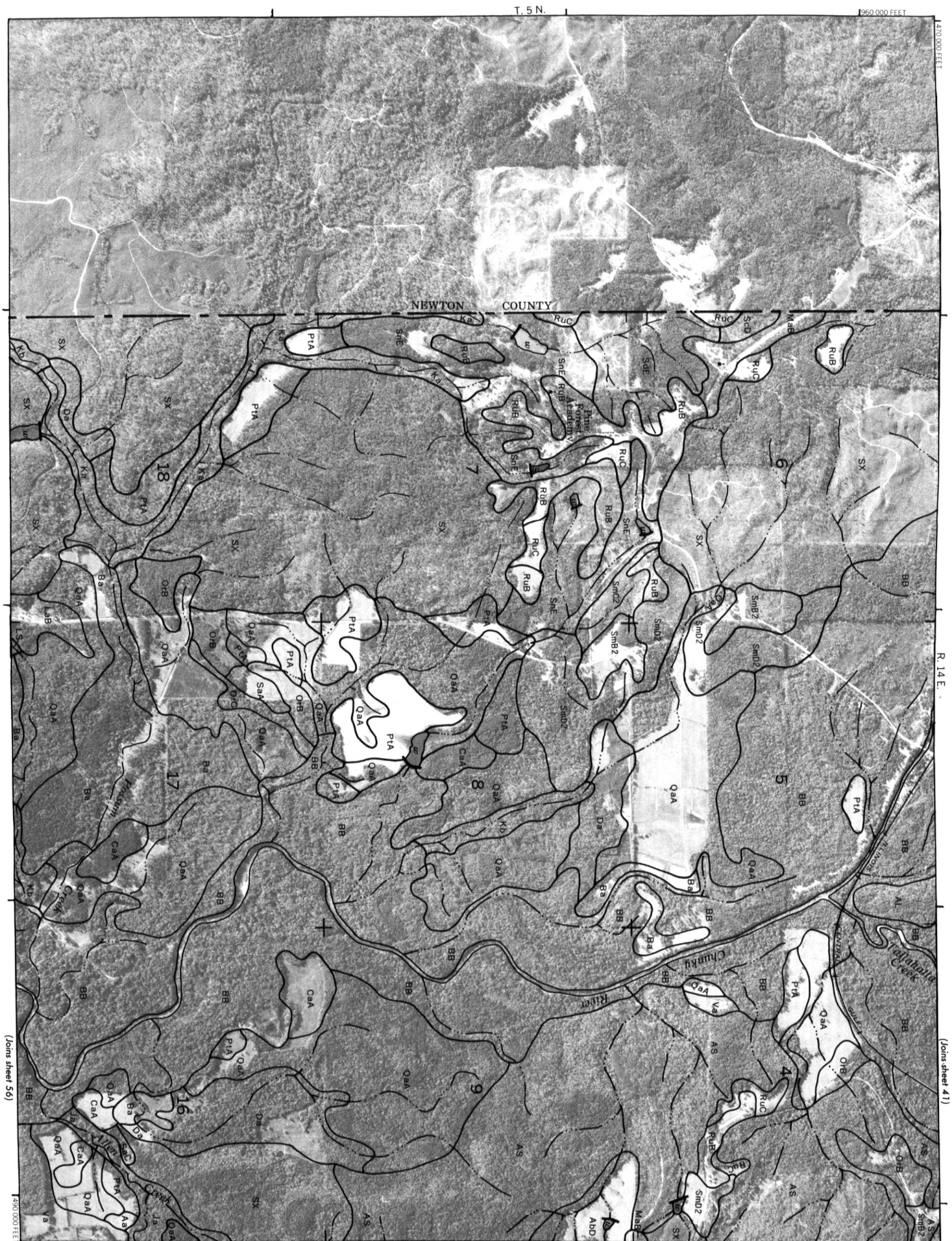
This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 48

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

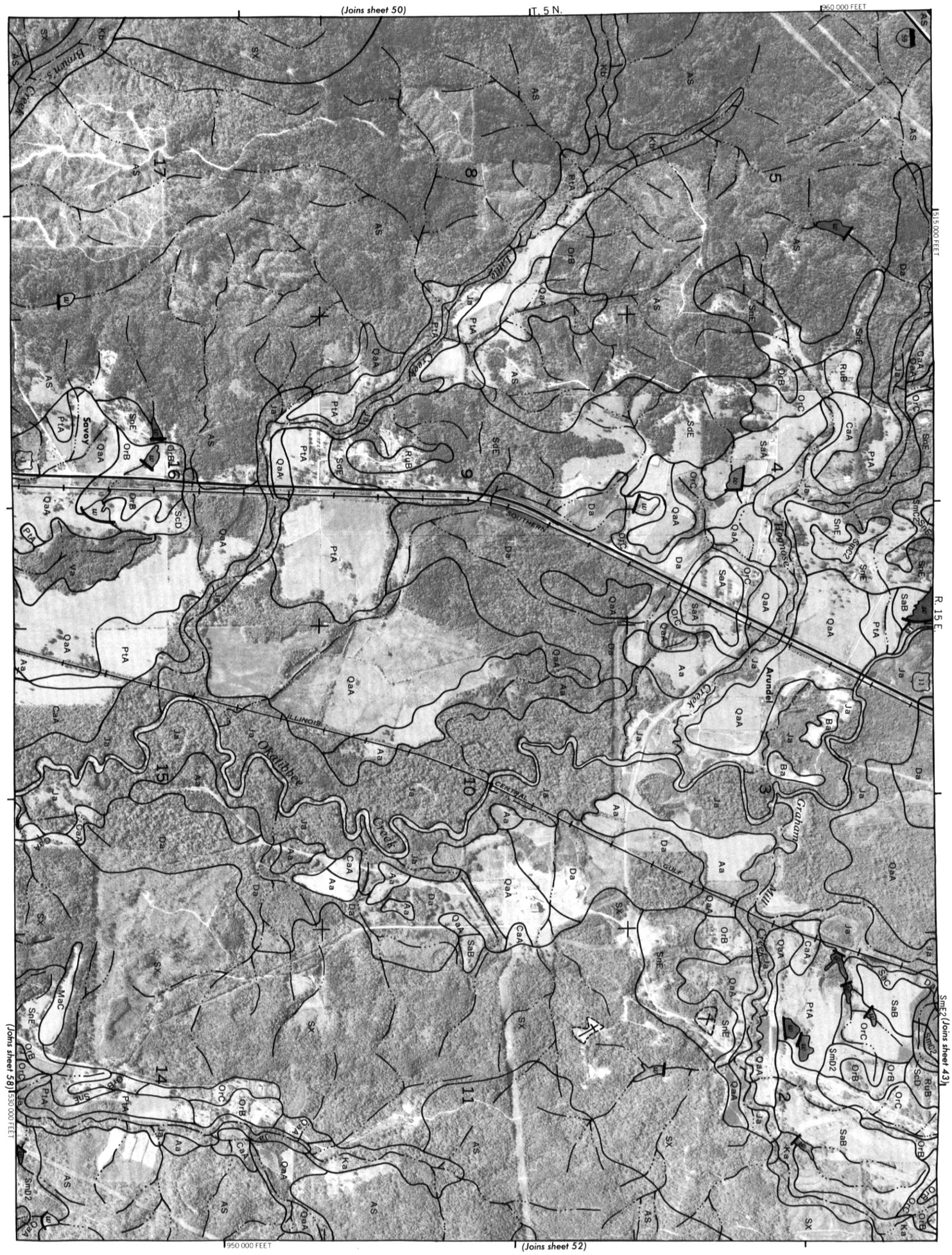
This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 50

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

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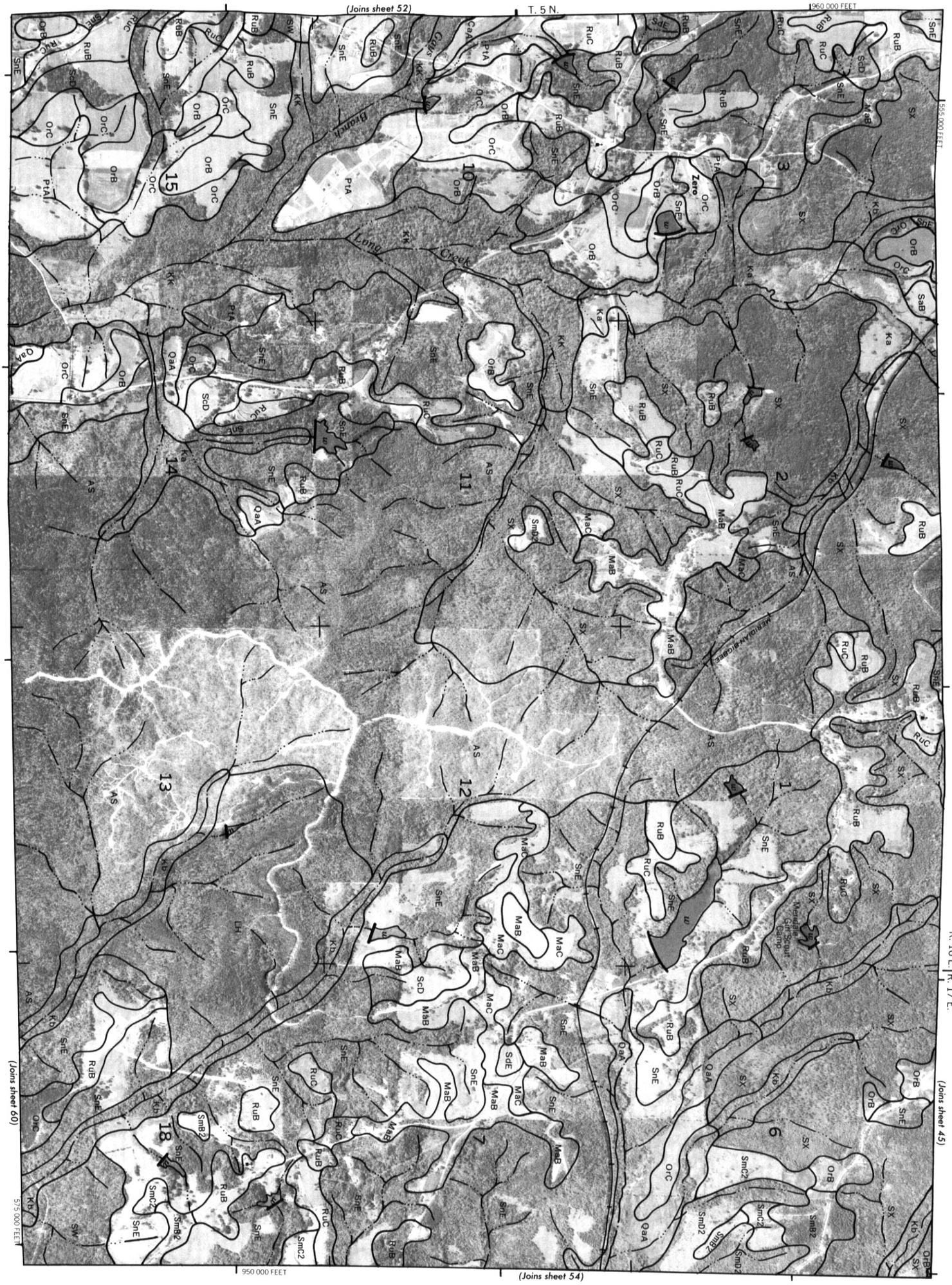
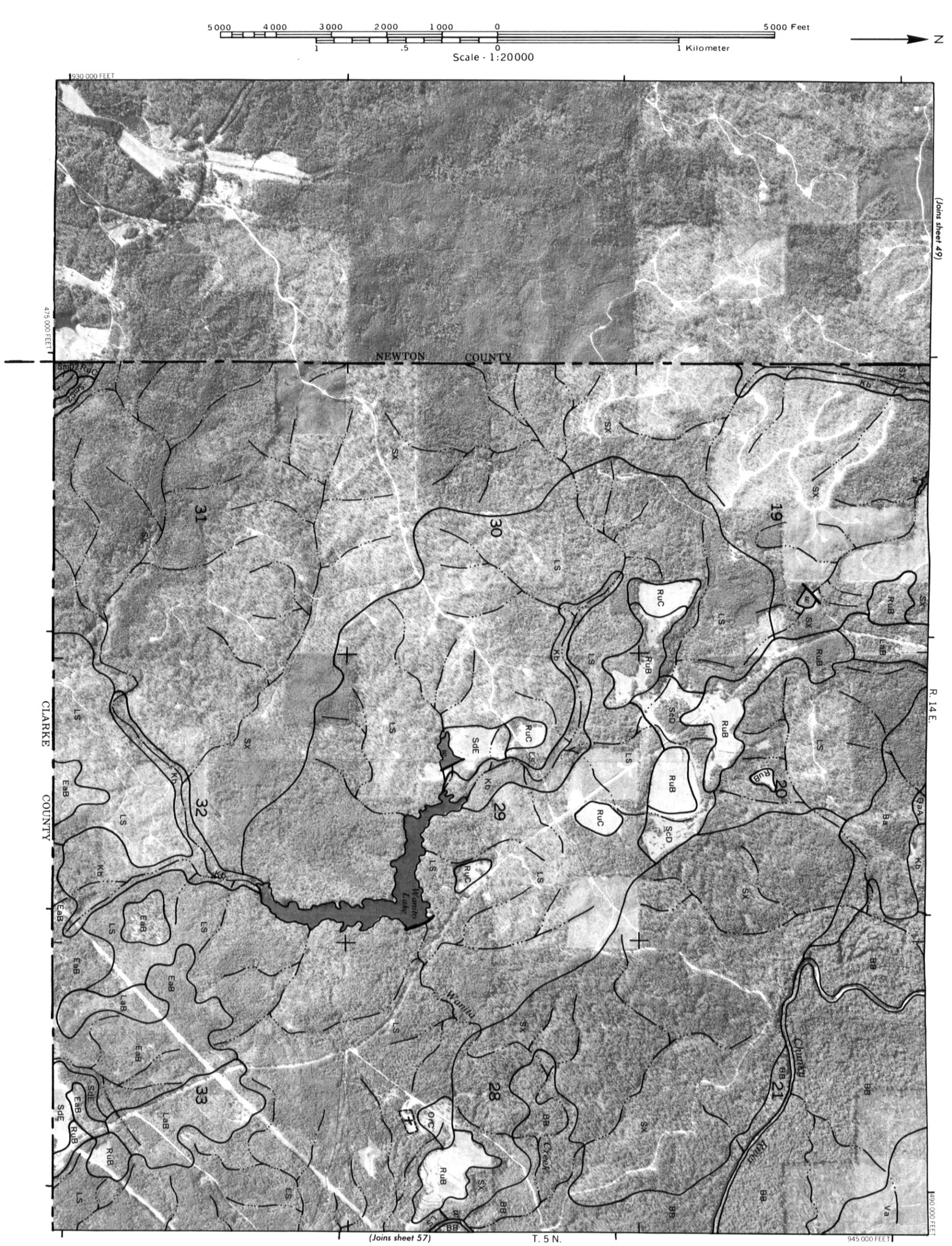


This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.



LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 56

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 57

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5000 4000 3000 2000 1000 0 5000 Feet

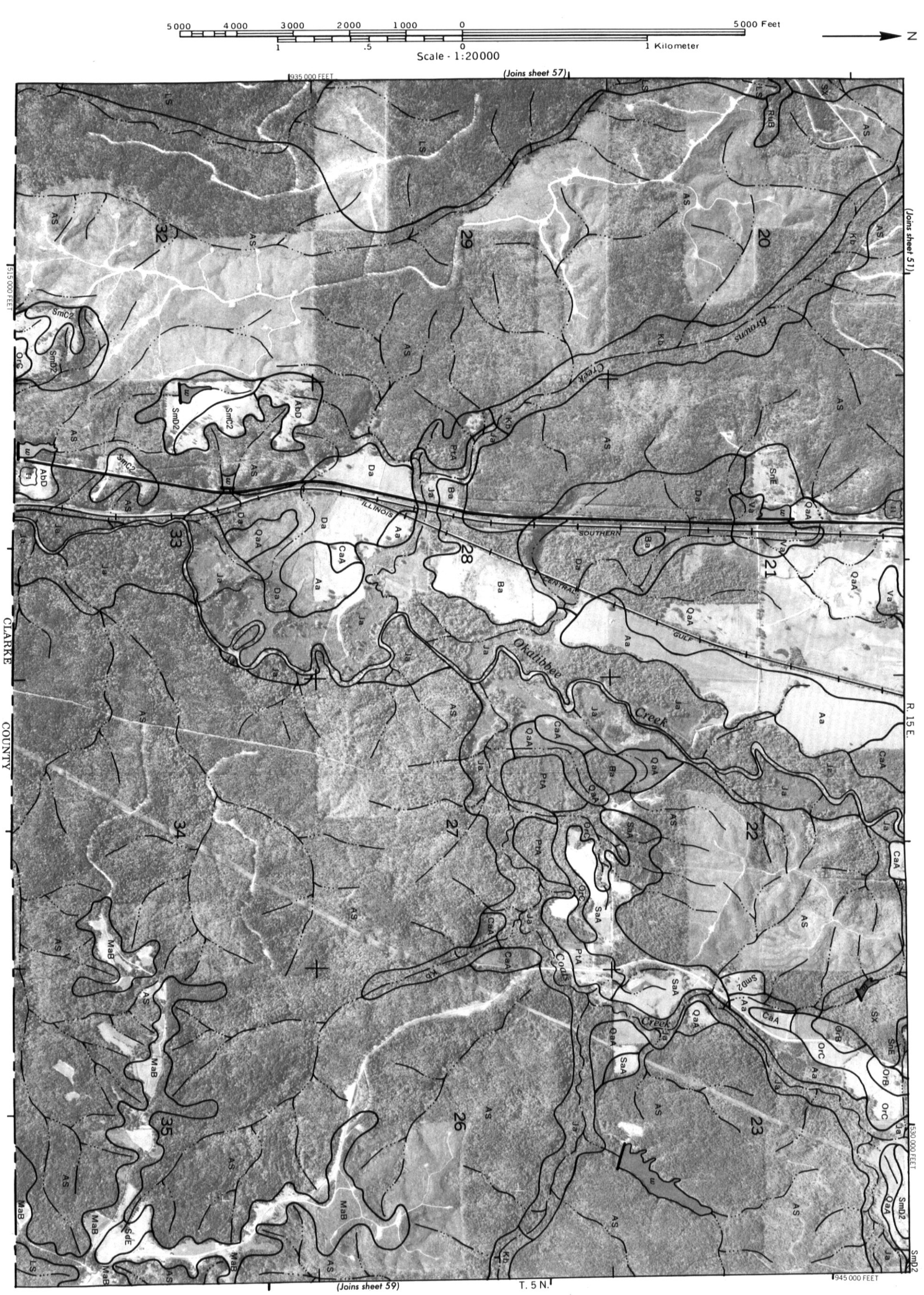
1 .5 0 1 Kilometer

Scale - 1:20000

N

57

LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 57



LAUDERDALE COUNTY, MISSISSIPPI — SHEET NUMBER 58

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

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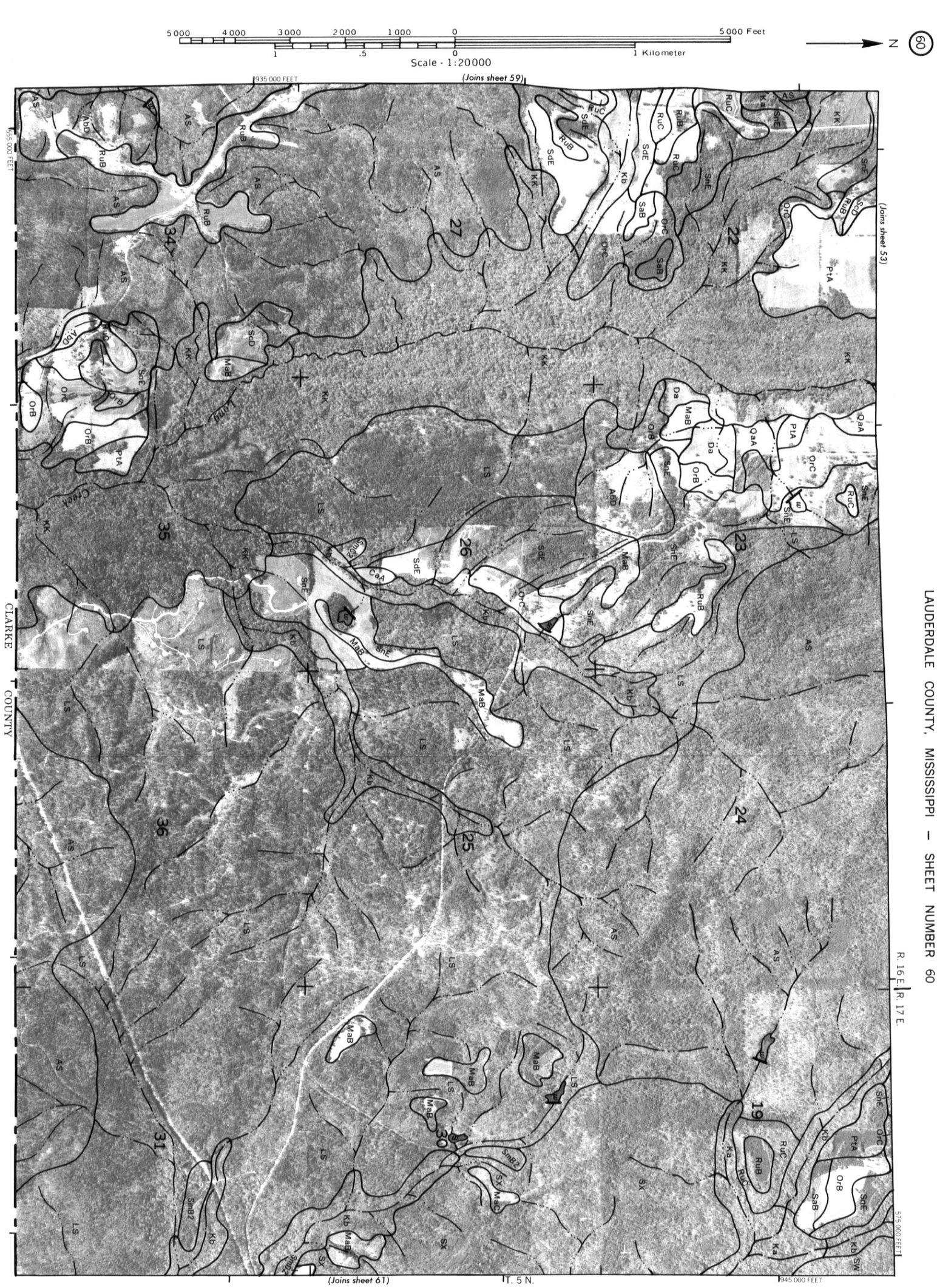


This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

LAUDERDALE COUNTY, MISSISSIPPI NO. 61

This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

61

N

580 000 FEET

945 000 FEET

R. 17 E.

T. 5 N.

(Joins sheet 54)

(Joins sheet 60)

(Joins sheet 62)

CLARKE COUNTY

595 000 FEET

935 000 FEET

McRae Lake

Tedder Branch

Long Branch

Buckatunna Creek

Brown's Creek

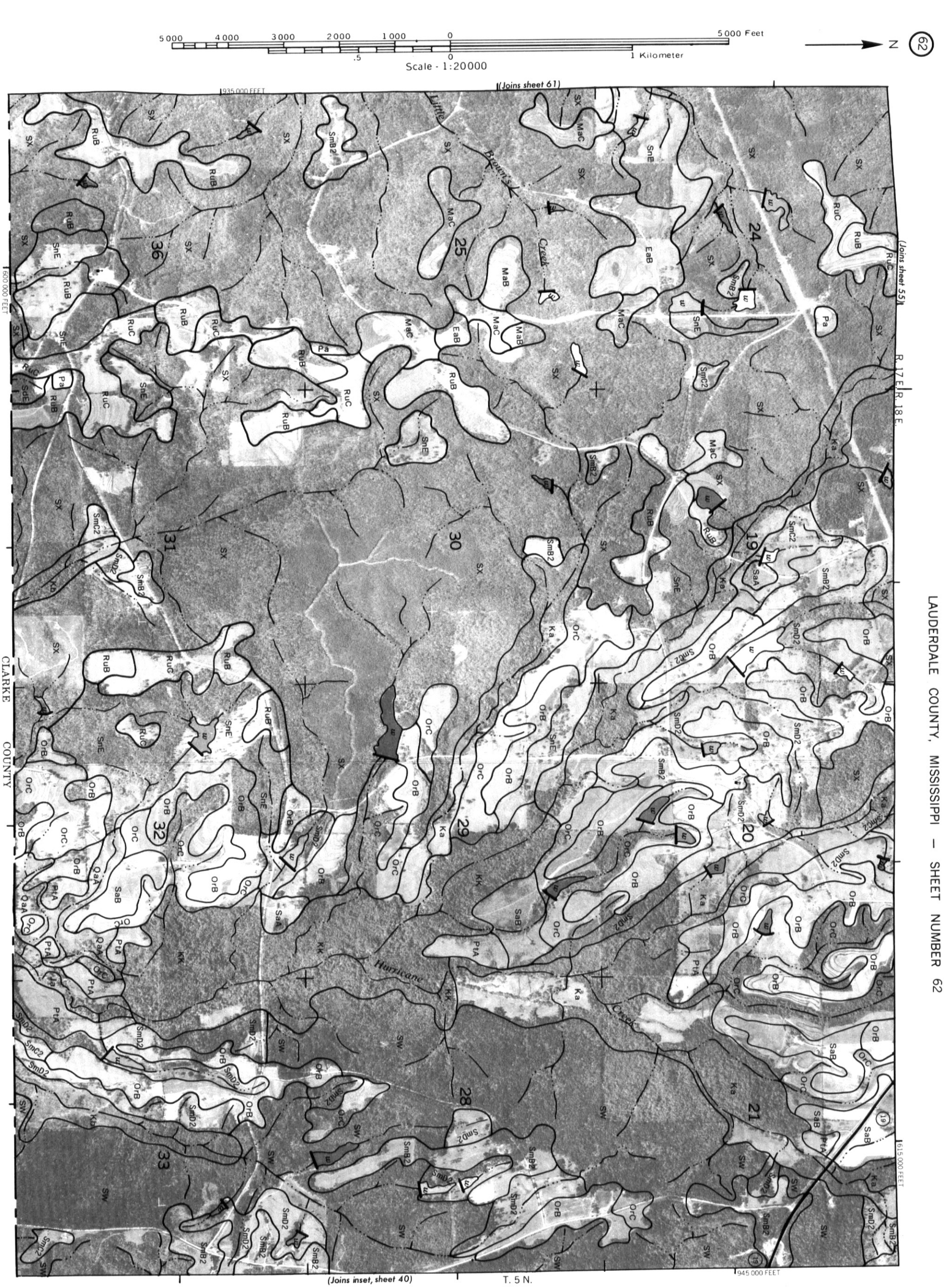
Little Creek

Increase

5000 Feet

1 Kilometer

Scale - 1:20000



This soil survey map was compiled by the U. S. Department of Agriculture, Soil Conservation Service, and cooperating agencies. Base maps are prepared from 1979 aerial photography. Coordinate grid ticks and land division corners, if shown, are approximately positioned.